PB83-175661

# Illinois Annual Air Quality Report - 1981

Illinois State Environmental Protection Agency
Springfield

1981

U.S. Department of Commerce
National Technical Information Service
NTIS

PB83-175661

State of Illinois
The Environmental Protection Agency

## 1981

# ILLINOIS ANNUAL AIR QUALITY REPORT

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

IEPA/APC/82-004

# ILLINOIS AIR QUALITY REPORT 1981

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
AMBIENT AIR MONITORING SECTION
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

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## 1.0 Public Participation

Citizens who wish to monitor air quality improvement efforts or to participate in making decisions about air pollution control have a number of avenues open to them. In Illinois air clean-up responsibilities are divided among state, local and federal authorities. Each level of government has built-in check points where citizens can review plans for future programs or progress in existing ones.

This Annual Air Quality Report is just one of many ways the Illinois EPA keeps the public informed of state air pollution control activities. The federal EPA, likewise, provides a steady flow of information about its programs, and many local government agencies publish newsletters and bulletins about their activities.

All of this information can be more confusing than helpful, however, if one tries to digest it without understanding the basic divisions of responsibility among the many government bodies. To get a picture of the overall organization, one needs to start with the federal Clean Air Act.

It was just over a decade ago when the federal government got serious about air pollution. It adopted the Clean Air Act with ambitious clean air deadlines and set up a federal-state partnership to accomplish its goals. States were ordered to assess the pollution porblems within their individual borders and to report back with a plan to clean-up areas with poor air quality.

To review these state plans and to set air quality health standards, the Act established the federal EPA (USEPA). To ensure that pollution problems would not worsen, the USEPA was given the responsibility to set uniform, nationwide emission standards for newly constructed industry. States were given the job of finding ways to cut back the pollution from plants not covered by federal action. Some local governments had already started their own pollution control programs, but for most of the states, there was no organized control effort underway.

The adoption of the initial Illinois State Implementation Plan for Air Pollution Control (SIP) in 1971 marked the beginning of a concerted statewide pollution control initiative. Since those early days, there has been substantial progress in reducing pollution. This is documented throughout the Annual Air Quality Report. But the report also shows that the state is still a long way from its goal of providing clean air to all its citizens.

In determining what else needs to be done, there is ample opportunity for public participation. To find out how to get involved, read the organization descriptions below.

### United States Environmental Protection Agency

Although it is not a state organization, the USEPA has a great amount of influence over Illinois' air pollution program. The federal Clean Air Act has set some fairly strict guidelines to follow and has given the USEPA final approval authority over all state air pollution plans. Through this power of final approval, the USEPA can ensure all state programs make steady progress.

The most important USEPA decisions affecting state programs and air pollution sources are published first as proposals in the Federal Register. After a comment period, the final decision is published along with a response to comments. Some information about non-regulatory USEPA actions is published in the Federal Register, but most information is released in USEPA publications and newsletters. To get on one of these mailing lists, contact the USEPA regional office in Chicago, 230 South Dearborn, 60604. One monthly bulletin is devoted entirely to public participation opportunities.

## Illinois Environmental Protection Agency

The Illinois EPA is one of three state organizations set up to handle pollution problems. (The other two are the Pollution Control Board and the Department of Energy and Natural Resources.) The Agency operates a statewide air pollution program. It investigates the need for regulations; it monitors air quality; files complaints against pollutors and it works with industry to ensure proper air pollution controls are employed.

To keep the public informed of its activities, the Air Division publishes reports like the Annual Ambient Air Quality Report. A "SIP Newsletter" is also published periodically and proposals for new regulations are mailed directly to persons on the Air Division mailing list. To get on the mailing list for these publications, write the Division of Air Pollution Control, Illinois EPA, 2200 Churchill Road, Springfield, Illinois 62706.

Certain types of Agency decisions have public participation built into the process. Official changes to the SIP, for example, must be presented at a public hearing before the state can adopt the change. Certain permit applications from industry must undergo a period of public review before a final decision can be made on issuing the permit.

For both SIP revisions and permit applications, the Agency prepares a document explaining the important issues and mails it to interested parties. Hearing notices are also published in newspapers.

## Illinois Pollution Control Board

The Board is a quasi-judicial, quasi-legislative body. It is the court of original jurisdiction for cases of alleged violations of the Illinois Environmental Protection Act and air pollution regulations passed subsequent to the Act. As a legislative body, the Board adopts industry emission regulations and other air pollution rules.

State law allows individual citizens to file cases against pollutors before the Board and to petition the Board to adopt new air pollution regulations. The instructions for filing actions are contained in the Board's Procedural Rules.

The Board publishes a newsletter, Environmental Register, which contains the text of all proposed regulations, adopting orders and opinions, notices of hearings, meetings and conferences plus associated news items. Subscriptions are available from the Center of Business Management, Illinois State Chamber of Commerce, 20 North Wacker Drive, Chicago, Illinois 60606 (312/372-7373).

## Local Government Agencies

Local law enforcement agencies have the authority to enforce the provisions of the Illinois Environmental Protection Act and its supporting regulations passed by the Pollution Control Board. Local communities can adopt their own air pollution ordinances as long as they do not confilct with state regulations. Several have set up their own local pollution control programs and many others have working agreements with the Illinois EPA to find ways to reduce automobile pollution.

Metropolitan planning agencies in the Quad Cities, Peoria, Chicago, and Metro East St. Louis also assist in preparing long range transportation related pollution control programs. All of these plans contain actions that the local communities intend to take to help solve auto pollution problems. Public review of these plans is encouraged.

# 2.0 AIR POLLUTANTS: SOURCES, HEALTH & WELFARE EFFECTS

## 2.1 PARTICULATE MATTER

Not all air pollutants are in the gaseous form. Small solid particles and liquid droplets, collectively called particulates or aerosols, are also present in the air in great numbers, and may constitute a pollution problem. Particulates entering the atmosphere differ in size and chemical composition. The effects of particulates on health and welfare are directly related to their size and chemical composition.

Particulate matter in the atmosphere consists of solids, liquids, and liquids-solids in combination. Suspended particulates generally refer to particles less than 100 microns in diameter (human hair is typically 100 microns thick). Particles larger than 100 microns will settle out of the air under the influence of gravity in a short period of time.

Typical sources emitting particles into the atmosphere are combustion of fossil fuels (ash and soot), industrial processes (metals, fibers, etc.), fugitive dust (wind and mechanical erosion of local soil) and photochemically produced particles (complex chain reactions between sunlight and gaseous pollutants). Combustion and photochemical products tend to be smaller in size (less than 1 micron); fugitive dust and industrial products are typically larger in size (greater than 1 micron).

Particles which cause the most health and visibility difficulties are those less than 1.0 microns in size. These particles are also the most difficult to reduce in numbers by the various industrial removal techniques. Rainfall-washout accounts for the major removal of these smaller particles from the air.

One of the major problems associated with high concentrations of particulates is that the interaction between the particles, sunlight, and atmospheric moisture can potentially result in climatic effects and diminished visibility (haze). Particles play a key role in the formation of clouds, and emissions of large numbers of particles can, in some instances, result in local increases in cloud formation and, possibly precipitation. Particles in the size range of 0.1 to 1.0 microns are the most efficient in scattering visible light (wave length 0.4 to 0.7 microns) thereby reducing visibility. Particles combined with high humidity can result in the formation of haze which can cause hazardous conditions for the operation of motor vehicles and aircraft.

Particulate pollutants enter the human body by way of the respiratory system and their most immediate effects are upon this system. The size of the particle determines its depth of penetration into the respiratory system. Particles over 5 microns are generally deposited in the nose and throat. Those that do penetrate deeper in the respiratory system to the air ducts (bronchi) are often removed by ciliary action. Particles ranging in size from 0.5 - 5.0 microns in diameter can be deposited in the bronchi, with few reaching the air sacts (alveoli). Most particles deposited in the bronchi are removed by the cilia within hours. Particles less than 0.5 micron in diameter reach and may settle in the alveoli. The removal of particles from the alveoli is much less rapid and complete than from the larger passages. Some of the particles retained in the alveoli are absorbed into the blood.

Besides particulate size, the oxidation state, chemical composition, concentration, and length of time in the respiratory system contribute to the health effects of particulates. Particulates have been associated with increased respiratory diseases (asthma, bronchitis, emphysema), cardiopulmonary disease (heart attack), and cancer.

Plant surfaces and growth rates may be adversely affected by particulate matter. Particulate air pollution also causes a wide range of damage to materials, and includes corrosion of metals and electrical equipment, and the soiling of textiles and buildings.

## 2.2 SULFUR DIOXIDE

Sulfur dioxide is an atmospheric pollutant which results from combustion processes (mainly burning of fossil fuels containing sulfur compounds), refining of petroleum, manufacture of sulfuric acid, and smelting of ores containing sulfur. Reduction of sulfur dioxide pollution levels can generally be achieved through the use of low sulfur content fuels or the use of chemical sulfur removal systems.

Once in the atmosphere some sulfur dioxide can be oxidized (either photochemically or in the presence of a catalyst) to $SO_3$ (sulfur trioxide). With water vapor present, $SO_3$ is readily converted to sulfuric acid mist. Other basic oxides combine with $SO_3$ to form sulfate aerosols. Sulfuric acid droplets and other sulfates are thought to account for about 5 to 20 percent of the total suspended particulate matter in urban air. Many of the resultant health problems attributed to $SO_2$ may be a result of the oxidation of $SO_2$ to other compounds.

The effects of $SO_2$ on health are irritation and inflammation of tissue that it directly contacts. Inhalation of $SO_2$ causes bronchial constriction resulting in an increased resistance to air flow, reduction of air volume, and an increase of respiratory rate and heart rate.

$SO_2$ can exacerbate pre-existing respiratory diseases (asthma, bronchitis, emphysema). The enhancement (synergism) by particulate matter of the toxic response to sulfur dioxide has been observed under conditions which would promote the conversion of sulfur dioxide to sulfuric acid. The degree of enhancement is related to the concentration of particulate matter. A twofold to threefold increase of the irritant response to sulfur dioxide is observed in the presence of particulate matter capable of oxidizing sulfur dioxide to sulfuric acid.

Sulfuric acid ($H_2SO_4$) inhalation causes an increase in the respiratory system's mucous secretions, which reduces the system's ability to remove particulates via mucociliary clearance. This can result in an increase incidence of respiratory infection.

## 2.3 CARBON MONOXIDE

The major source of carbon monoxide (CO) is motor vehicles. The USEPA has kept under its jurisdiction the regulation of emission control equipment on new motor vehicles while the State's responsibility for reducing excessive ambient carbon monoxide levels is exercised by developing transportation plans for congested urban areas.

The toxic effects of high concentrations of CO on the body are well known. Carbon monoxide is absorbed by the lungs and reacts with hemoglobin (the oxygen carrying molecule in the blood) to form carboxyhemoglobin (CHOb). This reaction reduces the oxygen carrying capacity of blood because the affinity of hemoglobin for CO is over 200 times that for oxygen. The higher the percentage of hemoglobin bound up in the form of carboxyhemoglobin, the more serious is the health effect.

The level of COHb in the blood is directly related to the CO concentration of the inhaled air. For a given ambient air CO concentration, the COHb level in the blood will reach an equilibrium concentration after a sufficient time period. This equilibrium COHb level will be maintained in the blood as long as the ambient air CO level remains unchanged. However, the COHb level will slowly change in the same direction as the CO concentration of the ambient air as a new equilibrium of CO in the blood decreases.

The lowest CO concentrations shown to produce adverse health effects result in aggravation of cardiovascular disease. Studies demonstrate that these concentrations have resulted in decreased exercise time before the onset of pain in the chest and extremities of individuals with heart or circulatory disesases. Slightly higher CO levels have been associated with decreases in vigilance, ability to discriminate times intervals, and exercise performance.

Evidence also exists indicating a possible relationship between CO and heart attacks, the development of cardiovascular disease, and fetal development.

Studies on the existing ambient levels of CO do not indicate any adverse effects on vegetation, materials, or other aspects of human welfare.

## 2.4 NITROGEN DIOXIDE

Nitrogen gas ($N_2$) is an abundant and inert gas which makes up almost 80 percent of the earth's atmosphere. In this form, it is harmless to man and essential to plant metabolism. Due to its abundance in the air, it is a frequent reactant in many combustion processes. When combustion temperatures are extremely high, as in the burning of coal, oil, gas, and in automobile engines, atmospheric nitrogen ($N_2$) may combine with molecular oxygen ($O_2$) to form various oxides, $NO_x$. Of these, nitric oxide (NO) and nitrogen dioxide ($NO_2$) are the most important contributors to air pollution; $NO_x$ generally is used to represent these. Nitric oxide (NO) is a colorless and odorless gas. It is the primary form of $NO_x$ resulting from the combustion process. $NO_x$ contributes to haze and a reduction of visibility. $NO_x$ is also known to cause deterioration and fading of certain fabrics, and damage to vegetation. Depending on concentration and extent of exposure, plants may suffer leaf lesions and reduced crop yield.

Sensitivity of plants to nitrogen oxides depends on a variety of factors including species, time of day, light, stage of maturity, and the presence or absence of other air pollutants such as sulfur dioxide and ozone.

There is a lack of strong evidence associating health effects with most nitrogen oxide compounds. $NO_2$, a secondary derivative of atmospheric nitric oxide (not considered harmful to humans at levels found in the atmosphere), however, has been clearly established as exerting detrimental effects on human health and welfare.

$NO_2$ can cause an impairment of dark adaptation at concentrations as low as 0.07 ppm. $NO_2$ can cause an increase in airway resistance, an increase in respiratory rate, an increase in sensitivity to bronchoconstrictors, a decrease in lung compliance, and an enhanced susceptibility to respiratory infections. $NO_2$ is a deep lung irritant capable of producing pulmonary edema if inhaled in sufficient concentrations. When $NO_2$ is inhaled in concentrations with other pollutants, the effects are additive.

$NO_x$ may also react with water to form corrosive nitric acids, a major component of acid precipitation. Additionally, $NO_x$ and various other pollutants (e.g., hydrocarbons) may react in the presence of sunlight to produce photochemical oxidants. These are extremely unstable compounds which damage plants and irritate both the eyes and respiratory system of people. Ozone ($O_3$) and a group chemicals called peroxyacetyl nitrates (PAN) are the major constituents of photochemical oxidants.

## 2.5 HYDROCARBONS

Hydrocarbons were originally recognized and controlled as air pollutants due to their role in the production of ozone in the atmosphere. This remains the primary purpose for hydrocarbon control. However, concern is growing over the possible relationship between exposure to specific hydrocarbons and cancer, genetic damage, birth defects and other adverse health effects. Thus, hydrocarbon control may not only reduce ozone levels but may also reduce the direct effects of hydrocarbons on human health.

## 2.6 PHOTOCHEMICAL OXIDANTS (i.e., OZONE, PAN)

Photochemical oxidants result from a complex series of atmospheric reactions initiated by sunlight. When reactive (non-methane) hydrocarbons and nitrogen oxides accumulate in the atmosphere and are exposed to the ultraviolet component of sunlight, the formation of new compounds, including ozone and peroxyacetylnitrate, takes place.

Absorption of ultraviolet light energy by nitrogen dioxide results in its dissociation into nitric oxide and an oxygen atom. The oxygen atoms for the most part react with atmospheric molecular oxygen ($O_2$) to form ozone. In general, nitrogen oxide will react with ozone to re-form nitrogen dioxide, completing the cycle. A build-up of ozone above the equilibrium concentration defined by the reaction cycle given above results when nitrogen oxide reacts with non-methane hydrocarbons. Oxygen atoms from the hydrocarbon radical oxidize nitrogen oxide to nitrogen dioxide without ozone being used up. Thus ozone concentrations are not depleted and can build-up quickly.

Ozone can also be formed naturally in the atmosphere by electrical discharge, and in the stratosphere by solar radiation; the former process is not capable of producing significant urban concentrations of this pollutant; however, there is some belief that incursion of ozone from the stratosphere can contribute significantly to elevated ground level concentrations of ozone under certain meteorological conditions.

Injury to vegetation is one of the earliest manifestations of photochemical air pollution, and sensitive plants are useful biological indicators of this type of pollution. The visible symptoms of photochemical oxidant produced injury to plants may be classified as: (1) acute injury, identified by cell collapse with subsequent development of necrotic patterns; (2) chronic injury, identified by necrotic patterns or with other pigmented patterns; and (3) physiological effects, identified by growth alterations, reduced yields, and changes in the quality of plant products. The acute symptoms are generally characteristic of a specific photochemical oxidant; though chronic injury patterns are not. Ozone injury to leaves is identified as a stippling or flecking. Adverse effects on sensitive vegetation have been observed from exposure to photochemical oxidant concentrations of about 100 ug/m$^3$ (0.05 ppm) for 4 hours.

Adverse effects on materials (rubber products and fabrics) from exposure to photochemical oxidants have not been precisely quantified, but have been observed at the levels presently occurring in many urban atmospheres.

Ozone accelerates the aging of many materials, resulting in rubber cracking, dye fading and paint erosion. These effects are linearly related to the total dose of ozone and can occur at very low levels, given long duration exposures.

Ozone is a pulmonary irritant that affects the respiratory mucous membranes, other lung tissues and respiratory functions. Clinical and epidemiological studies have demonstrated that ozone impairs the normal mechanical function of the lung, causing alterations in respiration; the most characteristic of which are shallow, rapid breathing and a decrease in pulmonary compliance. Exposure to ozone results in clinical symptoms such as chest tightness, coughing, and wheezing. Alterations in airway resistance can occur, especially to those with respiratory diseases (asthma, bronchitis, emphysema). These effects may occur in sensitive individuals, as well as in healthy exercising persons, at short-term ozone concentrations between 0.15 and 0.25 ppm.

Ozone exposure increases the sensitivity of the lung to bronchoconstrictive agents such as histamine, acetycholine, and allergens, as well as increasing the individual's susceptibility to bacterial infection. Simultaneous exposure to ozone and $SO_2$ can produce larger changes in pulmonary function that exposure to either pollutant alone.

Peroxyacetylnitrate (PAN) is an eye irritant, and its effects often occur in conjunction with the effects of ozone.

Two characteristics of ozone and oxidant exposures should be cited: (1) ozone itself is a primary cause of most of the health effects reported in toxicological and experimental human studies, and the evidence for attributing many health effects to this substance alone is very compelling, and (2) the complex of atmospheric photochemical substances is known to produce health effects, some of which are not attributable to pure ozone but may be caused by other photochemical substances in combination with ozone.

## 2.7 LEAD

Atmospheric lead comes primarily from combustion of leaded gasoline. Other sources, however, such as lead smelters, battery manufacturers, iron and steel producers and others can contribute significant amounts of lead to the immediate vicinity.

Lead is a stable compound which persists and accumulates both in the environment and in the human body. Lead enters the human body through ingestion and inhalation with consequent absorption into the bloodstream and distribution to all body tissues. Clinical, epidemiological and toxicological studies have demonstrated exposure to lead adversely affects human health.

Low level lead exposure has been found to interfere with specific enzyme systems and blood production. Kidney and neurological cell damage has also been associated with lead exposure. Animal studies have demonstrated that lead can contribute to reduced fertility and birth defects. Children are the population segment most sensitive to many of lead's adverse effects.

Other serious potential effects from lead exposure are behavioral. Brain damage has been well documented in cases of severe lead poisoning in children. Restlessness, headaches, tremors, and general symptoms of mental retardation have been noted. The brain seems to be particularly sensitive to lead poisoning, yet it is unclear whether low level exposure will result in brain disfunction. Although evidence exists which indicates that children with above-normal blood lead levels are more likely to demonstrate poor academic performance, the studies remain inconclusive.

## 2.8 ILLINOIS AMBIENT AIR QUALITY STANDARDS

Consistent with the intent of the Environmental Protection Act of the State of Illinois, Illinois has adopted ambient air quality and episode standards that specify maximum permissible short term and long term concentrations of various contaminants in the atmosphere. Ambient air quality and episode standards are limits on atmospheric concentrations of air contaminants established for the purpose of protecting the public health and welfare.

The Illinois and National Ambient Air Quality Standards consist of a primary and secondary standard for each pollutant (contaminant) as presented in Table 1. The Illinois Air Pollution Episode Levels are presented in Table 2. The primary standard and episode criteria represents the level of air quality which is necessary to protect the public health. The secondary standard defines the level of air quality which is necessary to protect the public welfare (vegetation, materials, property). The standards are legally enforceable limitations, and any person causing or contributing to a violation of the standards is subject to enforcement proceedings under the Environmental Protection Act. The standards have also been designed for use as a basis for the development of implementation plans by State and local agencies for the abatement and control of pollutant emissions from existing sources, and for the determination of air contaminant emission limitations to ensure that population, industry and economic growth trends do not add to the region's air pollution problems.

The first use of our air resources is to sustain public health. Air entering the respiratory tract must not menace health. Therefore, the air quality standards set, must as a minimum, provide air which will not adversely affect, through acute or chronic symptoms, the public health. Air contaminants increase the aggravation and the production of respiratory and cardiopulmonary diseases.

The second use of our air resources is to protect the public welfare. This includes, among other things, effects on crops, vegetation, wildlife, visibility and climate, as well as effects on materials, economic values and on personal comfort and well-being.

## TABLE 1

### SUMMARY OF NATIONAL AND ILLINOIS[1] AMBIENT AIR QUALITY STANDARDS

| POLLUTANT | TIME OF AVERAGE | PRIMARY STANDARD (AT 25°C and 760 mm of HG) | SECONDARY STANDARD |
|---|---|---|---|
| PARTICULATE MATTER (TSP) | Annual Geometric Mean<br>24 hour | 75 ug/$m^3$<br>260 ug/$m^3$ | 60 ug/$m^3$<br>150 ug/$m^3$ |
| SULFUR DIOXIDE ($SO_2$) | Annual Arithmetic Mean<br>24 hour<br>3 hour | 0.03 ppm ( 80 ug/$m^3$)<br>0.14 ppm (365 ug/$m^3$)<br>None | None<br>None<br>0.5 ppm (1300 ug/m3) |
| CARBON MONOXIDE (CO) | 8 hour<br>1 hour | 9 ppm (10 mg/$m^3$)<br>35 ppm (40 mg/$m^3$) | Same as Primary<br>Same as Primary |
| PHOTO-CHEMICAL OXIDANTS ($O_3$) | 1 hour - State<br>1 hour/day - Federal | 0.08 ppm (160 ug/$m^3$)<br>0.12 ppm (235 ug/$m^3$) | Same as Primary<br>Same as Primary |
| NON-METHANE HYDROCARBONS (N-MHC) | 3 hour (6 to 9 AM) | 0.24 ppm (160 ug/$m^3$) | Same as Primary |
| NITROGEN DIOXIDE ($NO_2$) | Annual Arithmetic Mean | 0.05 ppm (100 ug/$m^3$) | Same as Primary |
| LEAD (Pb) | Quarterly Arithmetic Mean | 1.5 ug/$m^3$ | Same as Primary |

[1] Illinois Air Quality Standards are identical to National Air Quality Standards with the exception of lead for which no state standard exists and for ozone as stated above.

NOTE: All standards with averaging time of 24 hours or less are not to be exceeded more than once per year.

## TABLE 2

## AIR POLLUTION EPISODE LEVELS

| POLLUTANT | WATCH | YELLOW ALERT | RED ALERT | EMERGENCY |
|---|---|---|---|---|
| SUSPENDED PARTICULATE MATTER (TSP) | 2 hour<br>5 COH-625 ug/m$^3$ | 24 hour<br>3 COH-375 ug/m$^3$ | 24 hour<br>5 COH-625 ug/m$^3$ | 24 hour<br>7 COH-875 ug/m$^3$ |
| SULFUR DIOXIDE ($SO_2$) | 2 hour<br>0.30 ppm | 4 hour<br>0.30 ppm | 4 hour<br>0.35 ppm | 4 hour<br>0.40 ppm |
| PRODUCT ($SO_2$ x TSP) | 2 hour<br>1.0 | 4 hour<br>1.0<br>24 hour<br>0.20 | 4 hour<br>2.0<br>24 hour<br>0.80 | 4 hour<br>2.4<br>24 hour<br>1.20 |
| CARBON MONOXIDE (CO) | 2 hour<br>30 ppm | 8 hour<br>15 ppm | 8 hour<br>30 ppm | 8 hour<br>40 ppm |
| PHOTO-CHEMICAL OXIDANTS ($O_3$) | (ADVISORY)<br>2 hour<br>0.07 ppm | 1 hour<br>.17 ppm | 1 hour<br>.30 ppm | 1 hour<br>.50 ppm |
| NITROGEN DIOXIDE ($NO_2$) | 2 hour<br>0.40 ppm | 1 hour<br>0.60 ppm<br>24 hour<br>0.15 ppm | 1 hour<br>1.20 ppm<br>24 hour<br>0.30 ppm | 1 hour<br>1.60 ppm<br>24 hour<br>0.40 ppm |
| NON-METHANE HYDROCARBONS (N-MHC) | None | None | None | None |

# 3.0 AIR SAMPLING NETWORK

## 3.1 DESCRIPTION OF THE AIR SAMPLING NETWORK

The Illinois air monitoring network is composed of instrumentation owned and operated by both the Illinois Environmental Protection Agency and by cooperating local agencies. This network has been designed to measure ambient air quality levels in the various Illinois Air Quality Control Regions (AQCR). These AQCR's were developed with consideration given to jurisdictional boundaries, urban-industrial centers, and climatological conditions. These factors, when evaluated concurrently, resulted in the designation of an area appropriate for the assessment of air quality and the implementation of air quality control measures. Historically, each AQCR was classified on the basis of known air pollutant concentrations or, where these were not known, estimated air quality. A map of the AQCR's in Illinois can be found at the beginning of the Regional air quality data section (Section 5.0).

Many local agencies and volunteers cooperate and support the operation of the Illinois air monitoring network. Table 3 contains a summary by AQCR of the distribution of air monitoring instruments which contribute to the Illinois air monitoring data bank. The Illinois air monitoring network contains both continuous and intermittent instruments. The continuous instruments operate throughout the year, while the noncontinuous instruments operate according to the schedule shown in Table 4. This is the official intermittent sampling schedule used by the Illinois EPA during 1981.

The Illinois air monitoring network is deployed along the lines described in the Illinois State Implementation Plan. The air monitoring network is dispersed throughout the State; however, major concentrations of monitors are found in the highly populated and industrialized AQCR 67 (Metropolitan Chicago) and AQCR 70 (Metropolitan East St. Louis).

The original emphasis in the design and operation of the Illinois air monitoring network was toward meeting the minimum instrument requirements based on the AQCR priority classification. An effort was made to locate instruments at sites which would be representative of air quality in the area. For reasons of ease of access and maintenance, several air monitoring instruments were often located at the same site. Recent emphasis has been placed on locating individual monitoring instruments at sites which are likely to measure the overall air quality impact of sources which are primary contributors of the pollutant being measured. As a result, although the total number of monitoring instruments within the network may remain the same, the number of individual monitoring sites will most likely increase.

## TABLE 3

## DISTRIBUTION OF AIR MONITORING INSTRUMENTS BY AIR QUALITY CONTROL REGION

| | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Samplers | | | | | | | | | | | | |
| Total Suspended Particulates | 6 | 2 | 67 | 1 | 7 | 18 | 3 | | 4 | 5 | 8 | 121 |
| Sulfur Dioxide (Continuous) | 3 | | 13 | | 1 | 6 | 1 | | 1 | 1 | 3 | 29 |
| Nitrogen Dioxide/ Nitrogen Oxide (Continuous) | | | 5 | | | | | | | | | 5 |
| Ozone | 3 | 1 | 21 | | 2 | 7 | 1 | | 2 | 2 | 4 | 43 |
| Nitrogen Dioxide (Bubbler) | | | 22 | | | | | | | | | 22 |
| Carbon Monoxide | 1 | | 7 | | 1 | 3 | | | 1 | | 1 | 14 |
| Hydrocarbons | | | 2 | | | | | | | | | 2 |
| Wind Systems | 1 | | 8 | | 1 | 4 | | | 1 | 2 | 3 | 20 |
| Total | 14 | 3 | 145 | 1 | 12 | 38 | 5 | | 9 | 10 | 19 | 256 |

## TABLE 4

### NON-CONTINUOUS SAMPLING NETWORK

Every 6th-day Sampling Schedule for 1981

# 1981

**January**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 |
| ④ | 5 | 6 | 7 | 8 | 9 | ⑩ |
| 11 | 12 | 13 | 14 | 15 | ⑯ | 17 |
| 18 | 19 | 20 | 21 | ㉒ | 23 | 24 |
| 25 | 26 | 27 | ㉘ | 29 | 30 | 31 |

**February**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| 1 | 2 | ③ | 4 | 5 | 6 | 7 |
| 8 | ⑨ | 10 | 11 | 12 | 13 | 14 |
| ⑮ | 16 | 17 | 18 | 19 | 20 | ㉑ |
| 22 | 23 | 24 | 25 | 26 | ㉗ | 28 |

**March**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | ⑤ | 6 | 7 |
| 8 | 9 | 10 | ⑪ | 12 | 13 | 14 |
| 15 | 16 | ⑰ | 18 | 19 | 20 | 21 |
| 22 | ㉓ | 24 | 25 | 26 | 27 | 28 |
| ㉙ | 30 | 31 | | | | |

**April**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | ④ |
| 5 | 6 | 7 | 8 | 9 | ⑩ | 11 |
| 12 | 13 | 14 | 15 | ⑯ | 17 | 18 |
| 19 | 20 | 21 | ㉒ | 23 | 24 | 25 |
| 26 | 27 | ㉘ | 29 | 30 | | |

**May**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| 3 | ④ | 5 | 6 | 7 | 8 | 9 |
| ⑩ | 11 | 12 | 13 | 14 | 15 | ⑯ |
| 17 | 18 | 19 | 20 | 21 | ㉒ | 23 |
| 24 | 25 | 26 | 27 | ㉘ | 29 | 30 |
| 31 | | | | | | |

**June**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | 1 | 2 | ③ | 4 | 5 | 6 |
| 7 | 8 | ⑨ | 10 | 11 | 12 | 13 |
| 14 | ⑮ | 16 | 17 | 18 | 19 | 20 |
| ㉑ | 22 | 23 | 24 | 25 | 26 | ㉗ |
| 28 | 29 | 30 | | | | |

**July**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | ③ | 4 |
| 5 | 6 | 7 | 8 | ⑨ | 10 | 11 |
| 12 | 13 | 14 | ⑮ | 16 | 17 | 18 |
| 19 | 20 | ㉑ | 22 | 23 | 24 | 25 |
| 26 | ㉗ | 28 | 29 | 30 | 31 | |

**August**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | | | 1 |
| ② | 3 | 4 | 5 | 6 | 7 | ⑧ |
| 9 | 10 | 11 | 12 | 13 | ⑭ | 15 |
| 16 | 17 | 18 | 19 | ⑳ | 21 | 22 |
| 23 | 24 | 25 | ㉖ | 27 | 28 | 29 |
| 30 | 31 | | | | | |

**September**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | ① | 2 | 3 | 4 | 5 |
| 6 | ⑦ | 8 | 9 | 10 | 11 | 12 |
| ⑬ | 14 | 15 | 16 | 17 | 18 | ⑲ |
| 20 | 21 | 22 | 23 | 24 | ㉕ | 26 |
| 27 | 28 | 29 | 30 | | | |

**October**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | ① | 2 | 3 |
| 4 | 5 | 6 | ⑦ | 8 | 9 | 10 |
| 11 | 12 | ⑬ | 14 | 15 | 16 | 17 |
| 18 | ⑲ | 20 | 21 | 22 | 23 | 24 |
| ㉕ | 26 | 27 | 28 | 29 | 30 | ㉛ |

**November**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | ⑥ | 7 |
| 8 | 9 | 10 | 11 | ⑫ | 13 | 14 |
| 15 | 16 | 17 | ⑱ | 19 | 20 | 21 |
| 22 | 23 | ㉔ | 25 | 26 | 27 | 28 |
| 29 | ㉚ | | | | | |

**December**

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| ⑥ | 7 | 8 | 9 | 10 | 11 | ⑫ |
| 13 | 14 | 15 | 16 | 17 | ⑱ | 19 |
| 20 | 21 | 22 | 23 | ㉔ | 25 | 26 |
| 27 | 28 | 29 | ㉚ | 31 | | |

## 3.2a DIRECTORY OF AIR MONITORING SITES OPERATED DURING 1981

**The following directory lists the air monitoring sites operated by the Illinois EPA and various cooperating agencies. The directory provides a distribution by parameter for each site by NAMS, SLAMS, or SPMS monitoring functions (see Section 3.1). An explanation of terms and equipment codes is provided at the end of the directory.**

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| 65 BURLINGTON-KEOKUK INTERSTATE (IOWA - ILL.) | | | | |
| KNOX COUNTY | | | | |
| Galesburg<br>(2740 001) | Library<br>40 East Simmons | Ill. EPA/City | N. 4535079<br>E. 721015 | SLAMS - TSP |
| PEORIA COUNTY | | | | |
| Peoria<br>(6080 001) | 610 N.E. Jefferson | Ill. EPA/Peoria Inspections Dept. | N. 4508172<br>E. 281481 | NAMS - TSP |
| Peoria<br>(6080 023) | Fire Station #4<br>2711 S.W. Jefferson | Ill. EPA/Peoria Inspections Dept. | N. 4505814<br>E. 278611 | NAMS - TSP |
| Peoria<br>(6080 024) | Fire Station #8<br>MacArthur & Hurlburt | Ill. EPA | N. 4507234<br>E. 279425 | NAMS - $SO_2$, $O_3$<br>SPMS - $WS/WD_n$ |
| Peoria<br>(6080 027) | Maintenance Building<br>1604 Detweiller Dr. | Ill. EPA/Peoria Inspections Dept. | N. 4518407<br>E. 279012 | SLAMS - TSP |
| Peoria (DISC)<br>(6080 029) | Salvation Army<br>407 N.E. Adams | Ill. EPA | N. 4507925<br>E. 281401 | SPMS - CO, WS/WD |
| Peoria (NEW/DISC)<br>(6080 032) | Marina<br>Corps of Engineers | Ill. EPA | N. 4508901<br>E. 283259 | NAMS - $SO_2$ |
| Peoria (NEW)<br>(6080 033) | Sipp School<br>Glen & University | Ill. EPA | N. 4513771<br>E. 279419 | SLAMS - CO |
| Peoria Hts.<br>(6120 001) | Peoria Hts. H.S.<br>508 E. Glen Ave. | Ill. EPA | N. 4513567<br>E. 281635 | NAMS - $O_3$ |
| TAZEWELL COUNTY | | | | |
| East Peoria<br>(2100 002) | East Peoria Bank<br>235 E. Washington | Ill. EPA/Peoria Inspections Dept. | N. 4505074<br>E. 281061 | NAMS - TSP |
| Pekin<br>(6060 002) | 531 Court | Ill. EPA/Cilco | N. 4494067<br>E. 276117 | NAMS - TSP |
| Pekin<br>(6060 004) | Fire Station #3<br>272 Derby | Ill. EPA | N. 4492740<br>E. 275283 | NAMS - $SO_2$ |
| WARREN COUNTY | | | | |
| Monmouth (NEW/DISC)<br>(5160001) | Monmouth College | Ill. EPA | N. 4531650<br>E. 699158 | SPMS - $O_3$ |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| 66 EAST CENTRAL ILLINOIS INTRASTATE | | | | |
| CHAMPAIGN COUNTY | | | | |
| Champaign<br>(1140 002) | Regional Office Building<br>2125 South First St. | Ill. EPA | N. 4437728<br>E. 394197 | SPMS - TSP |
| Champaign<br>(1140 004) | Booker T. Washington Elem. Sch.<br>606 E. Grove C | Ill. EPA | N. 4442012<br>E. 395216 | SLAMS - $O_3$ |
| MC LEAN COUNTY | | | | |
| Bloomington<br>(0480 001) | Pantograph Building<br>301 West Washington | Ill. EPA/Daily Pantograph | N. 4483116<br>E. 330116 | NAMS - TSP |
| 67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.) | | | | |
| COOK COUNTY | | | | |
| Alsip<br>(0140 001) | 4500 West 123rd St. | Cook County DEC | N. 4613154<br>E. 438956 | SPMS - TSP, $NO_2$ (Bubbler) |
| Arlington Hts.<br>(0200 001) | 33 S. Arlington Hts. Rd. | Cook County DEC | N. 4659111<br>E. 418716 | SLAMS - TSP |
| Arlington Hts.<br>(0200 003) | Arlington Lakes Golf Course<br>1211 New Wilke Rd. | Ill. EPA | N. 4656882<br>E. 417024 | SLAMS - $O_3$ |
| Bedford Park<br>(1540 002) | 6535 S. Central | Bedford Park Env Quality Control Board | N. 4624549<br>E. 436827 | SLAMS - TSP |
| Blue Island<br>(0500 001) | Eisenhower H.S.<br>12700 Sacramento | Cook County DEC | N. 4612262<br>E. 442932 | SLAMS - TSP<br>SPMS - $NO_2$ Bubbler |
| Calumet City<br>(0780 001) | Thorton Fractional H.S.<br>755 Pulaski Road | Cook County DEC | N. 4605938<br>E. 454802 | SLAMS - TSP<br>SPMS - $NO_2$ (Bubbler) |
| Calumet City<br>(0780 002) | 868 Marquette Avenue | Cook County DEC | N. 4607246<br>E. 452919 | SLAMS - $SO_2$, $NO/NO_2$, $O_3$<br>SPMS - CO, WS/WD |
| Chicago Hts.<br>(1240 001) | Bloom H.S.<br>Dixie Highway & 10th Street | Cook County DEC | N. 4595888<br>E. 446172 | SLAMS - TSP<br>SPMS - $NO_2$ (Bubbler), $SO_2$ CO, $O_3$, WS/WD |
| Cicero<br>(1340 001) | Roosevelt H.S.<br>15th St. & 50th Ave | Cook County DEC | N. 4634425<br>E. 437598 | SLAMS - TSP<br>SPMS - $NO_2$ (Bubbler) |
| Des Plaines<br>(1840 001) | Maine West H.S.<br>1755 S. Wolf Rd. | Cook County DEC | N. 4652290<br>E. 424858 | SPMS - TSP, $NO_2$ (Bubbler) |
| Evanston<br>(2360 001) | Police Department<br>1454 Elmwood | Ill. EPA/City | N. 4654615<br>E. 443240 | SLAMS - TSP |
| Evanston<br>(2360 002) | Water Pumping Station<br>531 East Lincoln | Ill. EPA | N. 4656685<br>E. 444098 | SLAMS - $O_3$ |
| Flossmoor<br>(2520 001) | Community H.S.<br>999 Kedzie Avenue | Cook County DEC | N. 4599302<br>E. 442080 | SPMS - TSP, $NO_2$ (Bubbler) |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| Franklin Park<br>(2620 001) | E. Leyden H.S.<br>3400 N. Rose St. | Cook County DEC | N. 4643567<br>E. 427981 | SPMS - TSP |
| Harvey<br>(3180 001) | Lowell School<br>157th and Lexington | Cook County DEC | N. 4605962<br>E. 445895 | SLAMS - TSP<br>SPMS - NO$_2$ (Bubbler) |
| Hillside<br>(3420 001) | Proviso West H.S.<br>Wolf Rd. & Harrison St. | Cook County DEC | N. 4635283<br>E. 425327 | SPMS - TSP, NO$_2$ (Bubbler) |
| Lyons (NEW)<br>(4480 001) | Fire Station #22<br>4043 Joliet Ave. | Cook County DEC | N. 4629580<br>E. 4319130 | NAMS - TSP, SO$_2$ |
| McCook<br>(1540 016) | Village Hall<br>50th St. & Glencoe | McCook Env. Board | N. 4627820<br>E. 430808 | SLAMS - TSP |
| Midlothian<br>(5080 001) | Breman H.S.<br>15202 Crawford Ave. | Cook County DEC | N. 4607135<br>E. 440339 | SPMS - TSP |
| Morton Grove<br>(5320 001) | Fireside Motel<br>9111 Waukegan | Cook County DEC | N. 4655197<br>E. 433944 | SLAMS - TSP<br>SPMS - NO$_2$ (Bubbler) |
| Niles<br>(5540 001) | Gemini H.S.<br>8955 Greenwood Ave. | Cook County DEC | N. 4654611<br>E. 430623 | SPMS - TSP |
| North Riverside<br>(5680 001) | 2350 Des Plaines Ave. | Cook County DEC | N. 4635938<br>E. 429543 | SPMS - SO$_2$, NO/NO$_2$ CO, O$_3$, WS/WD |
| Oak Park<br>(5740 002) | 834 Lake Street | Cook County DEC | N. 4637456<br>E. 433771 | SPMS - TSP, NO$_2$ (Bubbler) |
| Orland Park<br>(5860 001) | Carl Sandburg H.S.<br>133rd and LaGrange Rd. | Cook County DEC | N. 4610925<br>E. 428641 | SLAMS - TSP |
| Palatine<br>(5900 001) | Township H.S.<br>1000 Quentin Rd. | Cook County DEC | N. 4660703<br>E. 408549 | SPMS - TSP |
| River Forest<br>(6540 001) | Junior H.S.<br>Lathrop & Oak Ave. | Cook County DEC | N. 4637969<br>E. 432456 | SLAMS - TSP |
| Skokie<br>(7160 005) | Niles North H.S.<br>9800 Lawler | Cook County DEC | N. 4656493<br>E. 437740 | SPMS - NO$_2$ (Bubbler)[d], WS/WD<br>SLAMS - SO$_2$, CO, O$_3$ |
| Summit<br>(7520 001) | Graves School<br>60th and 74th Ave. | Cook County DEC | N. 4625734<br>E. 433104 | SLAMS - TSP<br>SPMS - NO$_2$ (Bubbler) |
| Wilmette<br>(8360 001) | Central School<br>9th St. & Central Ave. | Cook County DEC | N. 4658469<br>E. 441870 | SPMS - TSP, NO$_2$ (Bubbler) |
| Winnetka<br>(8420 001) | Crow Island School<br>1112 Willow Road | Ill. EPA/ Evanston North Shore H.D. | N. 4661092<br>E. 438104 | SLAMS - TSP |
| Chicago: | | | | |
| Addams Elem. Sch.<br>(1220 031) | 10810 So. Ave. "H" | Chicago DCS | N. 4616172<br>E. 455765 | SLAMS - TSP<br>SPMS - NO$_2$ (Bubbler) |
| Anthony Elem. Sch.<br>(1220 030) | 9800 So. Torrence Ave. | Chicago DCS | N. 4618246<br>E. 453462 | SLAMS - TSP |
| Bright Elem. Sch. (DISC)<br>(1220 041) | 10740 So. Calhoun | Ill. EPA | N. 4616364<br>E. 453277 | SPMS - TSP |
| Calumet H.S.<br>(1220 016) | 8131 So. May St. | Chicago DCS | N. 4621623<br>E. 445907 | SLAMS - TSP |
| Carver H.S.<br>(1220 018) | 801 E. 133rd Place | Chicago DCS | N. 4611172<br>E. 449833 | SLAMS - TSP |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| Chicago Avenue Pumping Station (NEW) (1220 049) | 805 N. Michigan | Chicago DCS | N. 4638327<br>E. 448339 | NAMS - TSP |
| Chicago Vocational H.S. (1220 017) | 2100 E. 87th St. | Chicago DCS | N. 4620648<br>E. 452351 | SLAMS - TSP |
| Cooley Vocational H.S. (1220 047) | 1450 Larrabee | Chicago DCS | N. 4639580<br>E. 446598 | NAMS - TSP<br>SPMS - $NO_2$ (Bubbler) |
| Edgewater (1220 037) | 5358 N. Ashland Ave. | Chicago DCS | N. 4647469<br>E. 444580 | SPMS - $NO_2$ (Bubbler |
| Farr Dormitory (1220 014) | 3300 S. Michigan Ave. | Chicago DCS | N. 4631364<br>E. 448179 | NAMS - TSP |
| Fenger Junior College (1220 010) | 11220 So. Wallace | Chicago DCS | N. 4615296<br>E. 447098 | SLAMS - TSP |
| G.S.A. Building (1220 005) | 538 S. Clark | Chicago DCS | N. 4636074<br>E. 447763 | SPMS - $NO_2$ (Bubbler) |
| Hale Elem. Sch. (1220 021) | 6140 So. Melvina Ave. | Chicago DCS | N. 4625450<br>E. 435469 | SLAMS - TSP |
| Lakeview H.S. (1220 004) | 4015 No. Ashland Ave. | Chicago DCS | N. 4644882<br>E. 444537 | SLAMS - TSP |
| Lincoln Park Zoo (NEW) (1220 045) | 2200 N. Cannon Dr. | Cook County DEC | N. 4641197<br>E. 447450 | NAMS - NO/$NO_2$, $O_3$ |
| Logan Sq. (Ill. Bell) (1220 028) | 2940 W. Cortland Ave. | Chicago DCS | N. 4640438<br>E. 441962 | SLAMS - TSP |
| Logan Sq. (NEW) (1220 051) | 3228 W. Palmer Ave. | Cook County DEC | N. 4641010<br>E. 441170 | NAMS - $SO_2$, CO |
| Museum of Science & Industry (NEW) (1220 044) | 57th & Museum | Cook County DEC | N. 4626420<br>E. 451556 | SLAMS - $O_3$ |
| Northwestern Univ. (1220 039) | Huron & Fairbanks Ct. | Ill. EPA | N. 4638049<br>E. 448549 | NAMS - $SO_2$, NO/$NO_2$<br>SPMS - $RHC^{nd}$ |
| Roseland Pump. Sta. (DISC) (1220 038) | 351 W. 104th Street | Cook County DEC | N. 4616981<br>E. 447432 | SLAMS - $O_3$ |
| Southeast Police Station (NEW) (1220 050) | 103rd & Luella | Cook County DEC | N. 4617243<br>E. 452756 | NAMS - $SO_2$ |
| South Water Filt. Plant (1220 032) | 3300 E. Cheltenham Place | Chicago DCS | N. 4622722<br>E. 454709 | SLAMS - TSP<br>SPMS - $NO_2$ (Bubbler) |
| State Office Building (1220 040) | 160 No. LaSalle | Ill. EPA | N. 4636950<br>E. 447500 | NAMS - CO<br>SLAMS - NO/$NO_2$<br>SPMS - $SO_2$, $RHC^{nd}$ |
| Steinmetz H.S. (1220 011) | 3030 No. Mobile Ave. | Chicago DCS | N. 4642679<br>E. 435148 | SPMS - $NO_2$ (Bubbler) |
| Stevenson Elem. Sch. (1220 009) | 8010 So. Kostner Ave. | Chicago DCS | N. 4621759<br>E. 439135 | SPMS - $NO_2$ (Bubbler) |
| Stevenson Elem Sch. (1220 009) | 8010 So. Kostner Ave. | Cook County DEC | N. 4621759<br>E. 439135 | SLAMS - $O_3$ |
| Sullivan H.S. (1220 020) | 6631 No. Bosworth Ave. | Chicago DCS | N. 4650074<br>E. 444543 | SLAMS - TSP |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| Taft H.S.<br>(1220 003) | 6545 W. Hurlbut St. | Chicago DCS | N. 4648111<br>E. 434438 | SLAMS - $O_3$<br>SPMS - $NO_2$ (Bubbler) |
| Taft H.S.<br>(1220 003) | 6545 W. Hurlburt St. | Cook County DEC | N. 4648111<br>E. 434438 | SLAMS - $O_3$ |
| Washington H.S.<br>(1220 022) | 3500 E. 114th St. | Chicago DCS | N. 4615074<br>E. 455030 | NAMS - TSP |
| DU PAGE COUNTY | | | | |
| Addison<br>(0060 001) | City Hall<br>130 W. Army Trail Rd. | Ill. EPA/DuPage Co. Health Dept. | N. 4642549<br>E. 417543 | SLAMS - TSP |
| Bensenville<br>(0380 001) | N. Fire Station<br>Main & York Rd. | Ill. EPA/City | N. 4645234<br>E. 422222 | SLAMS - TSP |
| Darien<br>(1730 001) | Eisenhower Jr. H.S.<br>1410 75th St. | Ill. EPA/DuPage Co. Health Dept. | N. 4622598<br>E. 418259 | SLAMS - TSP |
| Elmhurst<br>(2300 001) | Police Station<br>118 Schiller | Ill. EPA/DuPage Co. Health Dept. | N. 4639049<br>E. 422123 | NAMS - TSP |
| Glen Ellyn<br>(2920 001) | Water Dept. Garage<br>494 Pennsylvania St. | Ill. EPA | N. 4636487<br>E. 411432 | SPMS - TSP |
| Glen Ellyn (NEW)<br>(2920 002) | Pump Sta. #3<br>308 Wilson | Ill. EPA/City | N. 4634216<br>E. 410598 | NAMS - $SO_2$<br>SLAMS - $O_3$<br>SPMS - WS/WD |
| Naperville<br>(5480 001) | Fire Station<br>175 Jackson St. | Ill. EPA/DuPage Co. Health Dept. | N. 4624938<br>E. 404376 | SLAMS - TSP |
| West Chicago<br>(8080 002) | Police Station<br>128 W. McConnell Ave. | Ill. EPA/DuPage Co. Health Dept. | N. 4637626<br>E. 400080 | SLAMS - TSP |
| Wheaton<br>(8220 002) | Court House<br>201 Reber St. | Ill. EPA/DuPage Co. Health Dept. | N. [illegible]35049<br>E. 4[illegible]3358 | SLAMS - TSP |
| KANE COUNTY | | | | |
| Aurora (NEW)<br>(0220 002) | Fire Station<br>770 N. Michels | Ill. EPA | N. 4625339<br>E. 392376 | NAMS - TSP |
| Elgin (DISC)<br>(2260 001) | Modern Dairy<br>1002 No. Liberty | Ill. EPA/City | N. 4656672<br>E. 395018 | SPMS - TSP |
| Elgin<br>(2260 004) | Civic Center<br>150 Dexter Ct. | Ill. EPA | N. 4654734<br>E. 393654 | NAMS - TSP |
| Elgin (NEW)<br>(2260 005) | Larsen Jr. H.S.<br>665 Dundee Rd. | Ill. EPA | N. 4655845<br>E. 394660 | NAMS - $SO_2$, $O_3$ |
| KANKAKEE COUNTY | | | | |
| Bourbonnais<br>(0560 001) | Olivet Nazarene College | Ill. EPA | N. 4556179<br>E. 426666 | SLAMS - $O_3$ |
| Bradley<br>(0580 001) | East Elem. Sch.<br>610 E. Liberty St. | Ill. EPA | N. 4554462<br>E. 428259 | SLAMS - TSP |
| LAKE COUNTY | | | | |
| Deerfield<br>(1760 001) | Woodland Park Elem. Sch.<br>1321 Wilmot Rd. | Ill. EPA | N. 4669574<br>E. 428580 | NAMS - $O_3$ |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| Island Lake (DISC)<br>(4000 001) | Island Lake Grade School<br>Greenleaf Ave. | Ill. EPA/Lake Co. Health Dept. | N. 4680666<br>E. 401416 | SPMS - TSP |
| Lake Bluff<br>(4020 001) | East Elem. Sch.<br>121 E. Sheridan Place | Ill. EPA/Lake Co. Health Dept. | N. 4680333<br>E. 430166 | SLAMS - TSP |
| Libertyville<br>(4260 001) | Butterfield School<br>1441 Lake | Ill. EPA | N. 4682166<br>E. 419095 | SLAMS - $O_3$<br>SPMS - WS/WD |
| Waukegan<br>(8020 001) | City Hall<br>106 Utica | Ill. EPA/Lake Co. Health Dept. | N. 4690000<br>E. 431317 | SLAMS - TSP |
| Waukegan<br>(8020 002) | N. Fire Station<br>Golf & Jackson | Ill. EPA/ L.C.H.D. | N. 4692840<br>E. 430760 | NAMS - $O_3$<br>SLAMS - TSP, $SO_2$<br>SPMS - WS/WD |
| MC HENRY COUNTY | | | | |
| Cary<br>(1020 001) | Cary Grove H.S.<br>1st St. & Three Oaks Rd. | Ill. EPA/City H.S. | N. 4674876<br>E. 397580 | NAMS - $O_3$<br>SLAMS - TSP |
| WILL COUNTY | | | | |
| Braidwood<br>(8320 007) | Sewage Plant | Ill. EPA | N. 4570111<br>E. 397802 | SLAMS - TSP, $O_3$ |
| Joliet<br>(3760 002) | Pershing School<br>Midland and Campbell | Will County Health Dept. | N. 4597641<br>E. 406864 | NAMS - TSP |
| Joliet<br>(3760 003) | Rivals Park<br>1425 No. Broadway | Will County Health Dept. | N. 4600253<br>E. 409086 | SLAMS - TSP |
| Joliet<br>(3760 005) | Joliet & Benton Sts. | Ill. EPA | N. 4598000<br>E. 409456 | NAMS - $SO_2$<br>SPMS - WS/WD |
| Joliet<br>(3760 006) | Joliet Junior College<br>1216 Houbolt Street | Will County Health Dept. | N. 4594900<br>E. 401500 | SLAMS - TSP |
| Joliet<br>(3760 007) | Will County Health Department Building<br>501 Ella Ave. | Will County Health Dept. | N. 4595172<br>E. 410814 | SLAMS - TSP |
| Joliet (DISC)<br>(3760 010) | Chamber of Commerce<br>71 No. Ottawa St. | Will County Health Dept. | N. 4596777<br>E. 409117 | SLAMS - NO/$NO_2$, CO |
| Joliet (NEW)<br>(3760 012) | Will County Court House<br>Ottawa & Washington | Ill. EPA | N. 4597226<br>E. 409698 | SLAMS - CO |
| Lockport<br>(4380 002) | 5th & Madison | Will County Health Dept. | N. 4604796<br>E. 412641 | NAMS - TSP |
| Monee<br>(8320 005) | 432 E. Main St. | Will County Health Dept. | N. 4585320<br>E. 438438 | SLAMS - TSP |
| Rockdale (NEW)<br>(8320 009) | Volunteer Fire Dept. | Will County Health Dept. | N. 4595370<br>E. 406870 | NAMS - TSP |
| Romeoville<br>(6760 002) | Naperville Rd. | Will County Health Dept. | N. 4612240<br>E. 409680 | NAMS - TSP |
| South Lockport<br>(8320 008) | Park District Office Building<br>1911 So. Lawrence | Will County Health Dept. | N. 4604802<br>E. 412574 | SLAMS - $O_3$ |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| 68 METROPOLITAN DUBUQUE INTERSTATE (IOWA - ILL. - WIS.) | | | | |
| JO DAVIESS COUNTY | | | | |
| Galena<br>(2720 002) | Kraft Foods Plant<br>South Commerce St. | Ill. EPA/<br>Jo Daviess Co.<br>Health Dept. | N. 4698882<br>E. 711611 | SPMS - TSP |
| 69 METROPOLITAN QUAD CITIES INTERSTATE (ILL. - IOWA) | | | | |
| ROCK ISLAND COUNTY | | | | |
| Cordova (NEW/DISC)<br>(6720 002) | Post Office | Ill. EPA | N. 4617580<br>E. 723265 | SPMS - $O_3$ |
| East Moline<br>(2080 001) | City Hall<br>915 16th Ave. | Ill. EPA/Rock<br>Island Co.<br>Health Dept. | N. 4598938<br>E. 713543 | SLAMS - TSP |
| East Moline<br>(2080 002) | John Deere Parts Building<br>1400 13th St. | Ill. EPA/Rock<br>Island Co.<br>Health Dept. | N. 4599185<br>E. 714259 | SLAMS - TSP |
| Milan<br>(5100 001) | Elem. Sch.<br>125 W. 2nd Ave. | Ill. EPA/Rock<br>Island Co.<br>Health Dept. | N. 4591604<br>E. 703240 | SLAMS - TSP |
| Moline<br>(5120 002) | Moline H.S.<br>3600 23rd Ave. | Ill. EPA/Rock<br>Island Co.<br>Health Dept. | N. 4595691<br>E. 709925 | SLAMS - TSP |
| Moline<br>(5120 003) | Water Treatment Plant<br>30 18th St. | Ill. EPA | N. 4598339<br>E. 707500 | NAMS - $SO_2$, $O_3$<br>SPMS - WS/WD |
| Moline<br>(5120 004) | Post Office<br>6th Ave. & 17th St. | Ill. EPA | N. 4597876<br>E. 707561 | SLAMS - CO |
| Rock Island<br>(6700 001) | 1528 3rd Ave. | Ill. EPA/Rock<br>Island Co.<br>Health Dept. | N. 4597950<br>E. 702179 | NAMS - TSP |
| Rock Island<br>(6700 003) | Rock Island H.S.<br>1400 25th Ave. | Ill. EPA/Rock<br>Island Co.<br>Health Dept. | N. 4595493<br>E. 702327 | SLAMS - TSP |
| WHITESIDE COUNTY | | | | |
| Sterling (DISC)<br>(7400 001) | Fire Station<br>110 W. 5th St. | Ill. EPA | N. 4629583<br>E. 275283 | SPMS - TSP |
| 70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.) | | | | |
| MADISON COUNTY | | | | |
| Alton<br>(0160 004) | City Hall<br>103 E. 3rd St. | Ill. EPA | N. 4308216<br>E. 744166 | SLAMS - TSP |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER / OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| Alton<br>(0160 006) | Horace Mann School<br>2708 Edwards St. | Ill. EPA | N. 4309512<br>E. 747407 | SLAMS - $SO_2$, $O_3$<br>SPMS - WS/WD |
| Alton<br>(0160 007) | School Board<br>Administration Cen.<br>1854 E. Broadway | Ill. EPA | N. 4306543<br>E. 743395 | SLAMS - CO |
| Collinsville<br>(1500 002) | EPA Office<br>115A W. Main | Ill. EPA | N. 4284232<br>E. 239953 | SLAMS - TSP |
| Edwardsville<br>(4680 007) | RAPS Trailer<br>Poag Road | Ill. EPA | N. 4297802<br>E. 757074 | SLAMS - TSP, $SO_2$,<br>$NO/NO_2^d$, $O_3$<br>SPMS - WS/WD |
| Granite City<br>(2960 007) | Fire Station #1<br>23rd & Madison | Granite City APC | N. 4287734<br>E. 748481 | NAMS - TSP |
| Granite City<br>(2960 008) | Lake School<br>3201 E. 23rd | Granite City APC | N. 4287580<br>E. 750611 | SPMS - TSP |
| Granite City<br>(2960 009) | 2001 E. 20th | Granite City APC | N. 4286654<br>E. 748777 | SLAMS - TSP |
| Granite City<br>(2960 010) | 15th & Madison | Granite City APC | N. 4286500<br>E. 747277 | SPMS - TSP |
| Granite City<br>(2960 011) | Fire Station #2<br>Roosevelt & Rock Rd. | Granite City APC | N. 4288333<br>E. 746586 | SLAMS - TSP |
| Granite City<br>(2960 012) | Granite City APC Office<br>2301 Adams | Granite City APC | N. 4288240<br>E. 747895 | SLAMS - $SO_2$, $O_3$ |
| Granite City<br>(2960 014) | Norfolk & Western | Ill. EPA/Granite City APC | N. 4286388<br>E. 749888 | SPMS - TSP |
| Granite City<br>(2960 015) | Frohardt School<br>2040 Johnson | Ill. EPA/Granite City | N. 4289753<br>E. 750611 | SLAMS - TSP |
| Granite City<br>(2960 016) | 23rd & Nameoki | Ill. EPA/Granite City APC | N. 4287395<br>E. 750327 | SLAMS - TSP |
| Granite City<br>(2960 017) | 2001 Edison | Granite City APC | N. 4287364<br>E. 747864 | SLAMS - CO |
| Granite City<br>(2960 019) | 20th & Adams | Ill. EPA | N. 4287592<br>E. 747598 | SPMS - TSP |
| Maryville<br>(4680 008) | State Police Headquarters<br>Rt. 159 South | Ill. EPA | N. 4284234<br>E. 240074 | SLAMS - $O_3$<br>SPMS - $WS/WD^n$ |
| Wood River<br>(8520 007) | Water Treatment Plant<br>54 No. Walcott | Ill. EPA | N. 4305185<br>E. 751135 | NAMS - TSP, $SO_2$, $O_3$<br>SPMS - $WS/WD^d$ |
| MONROE COUNTY | | | | |
| Columbia (DISC)<br>(1520 001) | City Hall<br>208 So. Rapp | Ill. EPA | N. 4258345<br>E. 744376 | SPMS - TSP |
| Waterloo<br>(7960 001) | U.S. Dept. of Agriculture<br>Building, Maeystown Road | Ill. EPA | N. 4246104<br>E. 748283 | SLAMS - TSP, $O_3$ |
| ST. CLAIR COUNTY | | | | |
| Belleville<br>(0320 001) | City Hall<br>101 So. Illinois | Ill. EPA | N. 4266734<br>E. 239790 | SLAMS - TSP |
| Cahokia<br>(0720 001) | Bi-State Parks Airport<br>1201 St. Clement | Ill. EPA | N. 4272666<br>E. 747364 | SLAMS - TSP, $SO_2$<br>SPMS - WS/WD |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| East St. Louis<br>(2120 010) | RAPS Trailer<br>13th & Tudor | Ill. EPA | N. 4277339<br>E. 747302 | NAMS - TSP, $SO_2$<br>SLAMS - $NO/NO_2$, $O_3$, CO |
| 71 NORTH CENTRAL ILLINOIS INTRASTATE | | | | |
| BUREAU COUNTY | | | | |
| DePue<br>(0680 001) | Spayer Residence<br>1401 Marquette | Ill. EPA/Mr. Spayer | N. 4577444<br>E. 308425 | SLAMS - TSP |
| LA SALLE COUNTY | | | | |
| LaSalle<br>(4080 001) | LaSalle-Peru H.S.<br>541 Chartres | Ill. EPA | N. 4577611<br>E. 323469 | SLAMS - $O_3$<br>SPMS - $SO_2$[d] |
| Oglesby (DISC)<br>(5800 002) | Jasper Yard<br>230 Portland | Ill. EPA | N. 4573135<br>E. 328364 | SPMS - TSP |
| Oglesby (DISC)<br>(5800 003) | Fire Station<br>110 W. 2nd St. | Ill. EPA | N. 4573123<br>E. 327345 | SPMS - TSP |
| Oglesby (DISC)<br>(5800 004) | Kasap Lot<br>Maple & Watson | Ill. EPA | N. 4573123<br>E. 328067 | SPMS - TSP |
| Oglesby (DISC)<br>(5800 005) | Rundle Lot<br>217 Portland | Ill. EPA | N. 4573166<br>E. 327697 | SPMS - TSP, WS/WD |
| Ottawa<br>(5880 002) | Ottawa Township H.S.<br>211 E. Main | Ill. EPA/Mr. Krabel | N. 4578475<br>E. 346296 | SLAMS - TSP |
| 73 ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILL. - WIS.) | | | | |
| DE KALB COUNTY | | | | |
| DeKalb<br>(1780 003) | Clinton Rosette Middle Sch.<br>650 No. 1st St. | Ill. EPA | N. 4647320<br>E. 352074 | SLAMS - TSP |
| WINNEBAGO COUNTY | | | | |
| Rockford<br>(6680 005) | Fire House<br>1528 18th Ave. | Ill. EPA | N. 4679185<br>E. 329024 | NAMS - $SO_2$<br>SPMS - WS/WD |
| Rockford<br>(8400 001) | Maple Elem. Sch.<br>1405 Maple Ave. | Ill. EPA | N. 4688800<br>E. 332200 | NAMS - $O_3$ |
| Rockford<br>(6680 009) | Walker Grade School<br>1500 Post St. | Ill. EPA | N. 4683574<br>E. 328746 | NAMS - $O_3$ |
| Rockford (NEW)<br>(6680 010) | Fire Dept. Admin. Bld.<br>204 S. 1st St. | Ill. EPA/Winn. Co. Hlth. Dept. | N. 4681314<br>E. 327641 | NAMS - TSP |
| Rockford (NEW)<br>(6680 011) | City Hall<br>425 E. State | Ill. EPA | N. 4678300<br>E. 327800 | SLAMS - CO |
| Rockford (NEW)<br>(6680 012) | Beyer Elem. Sch.<br>333 15th St. | Ill. EPA/Winn. Co. Hlth. Dept. | N. 4679456<br>E. 327259 | NAMS - TSP |

# 1981
# SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| South Beloit<br>(7180 001) | Wheeler School<br>Wheeler Ave. at Washington | Ill. EPA | N. 4705969<br>E. 332969 | SPMS - TSP |
| 74 SOUTHEAST ILLINOIS INTRASTATE | | | | |
| CRAWFORD COUNTY | | | | |
| Robinson (DISC)<br>(6620 001) | Lincoln Trail College<br>R.R. #1 | Ill. EPA | N. 4318938<br>E. 439598 | SPMS - TSP, $O_3$ |
| EFFINGHAM COUNTY | | | | |
| Effingham (DISC)<br>(2200 001) | USDA Building<br>1015 So. Willow | Ill. EPA/Mr. Rexroat | N. 4330583<br>E. 366866 | SPMS - TSP |
| Effingham (NEW)<br>(2220 001) | Central Jr. H.S.<br>Route 45 South | Ill. EPA | N. 4326587<br>E. 366063 | SLAMS - TSP, $O_3$<br>SPMS - WS/WD |
| JACKSON COUNTY | | | | |
| Carbondale (DISC)<br>(0840 002) | 306 W. Main St. | Ill. EPA/SIU | N. 4177660<br>E. 304518 | SLAMS - TSP |
| Carbondale (NEW)<br>(0840 003) | Community H.S.<br>300 N. Springer | Ill. EPA | N. 4177774<br>E. 303849 | SLAMS - TSP |
| JEFFERSON COUNTY | | | | |
| Mt. Vernon<br>(5420 002) | State Office Building<br>601 No. 18th St. | Ill. EPA | N. 4243166<br>E. 332672 | SLAMS - TSP |
| WILLIAMSON COUNTY | | | | |
| Marion<br>(4720 001) | State Office Building<br>2209 W. Main St. | Ill. EPA | N. 4177240<br>E. 327833 | SLAMS - $SO_2$, $O_3$<br>SPMS - WS/WD |
| 75 WEST CENTRAL ILLINOIS INTRASTATE | | | | |
| ADAMS COUNTY | | | | |
| Quincy (DISC)<br>(6440 002) | Central Fire Station<br>9th & Vermont | Ill. EPA/City | N. 4421487<br>E. 636512 | SPMS - TSP |
| Quincy<br>(6440 005) | Highland Riverside Sch.<br>Highland Lane | Ill. EPA | N. 4425067<br>E. 637345 | SLAMS - $O_3$ |
| Quincy (NEW)<br>(6440 006) | St. Boniface Sch.<br>732 Hampshire | Ill. EPA | N. 4421358<br>E. 636388 | SLAMS - TSP, $SO_2$<br>SPMS - WS/WD |
| MACON COUNTY | | | | |
| Decatur<br>(1740 002) | Grant School<br>2300 Geddes | Ill. EPA | N. 4413703<br>E. 335413 | SPMS - TSP |
| Decatur<br>(1740 004) | Harris School<br>600 E. Garfield | Ill. EPA | N. 4414179<br>E. 333345 | NAMS - TSP |

## 1981
## SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| Decatur<br>(1740 006) | Fire Station #4<br>2760 No. 22nd St. | Ill. EPA | N. 4419302<br>E. 335364 | SLAMS - $SO_2$, $O_3$<br>SPMS - WS/WD |
| Decatur<br>(1740 009) | 750 E. Lake Shore Dr. | Ill. EPA | N. 4410048<br>E. 333574 | SLAMS - TSP |
| Decatur<br>(1740 012) | Decatur Housing Authority<br>1808 E. Locust | Ill. EPA | N. 4413413<br>E. 334783 | NAMS - TSP |
| MACOUPIN COUNTY | | | | |
| Nilwood (DISC)<br>(4640 001) | Post Office | Ill. EPA | N. 4365085<br>E. 258046 | SLAMS - $O_3$ |
| Nilwood (NEW)<br>(4640 002) | Trailer | Ill. EPA | N. 4364790<br>E. 257919 | SLAMS - $O_3$ |
| MENARD COUNTY | | | | |
| Petersburg<br>(6170 001) | 7th & Jackson | Ill. EPA | N. 4432518<br>E. 256722 | SLAMS - TSP |
| SANGAMON COUNTY | | | | |
| Springfield<br>(7280 005) | IEPA Bldg.<br>2200 Churchill | Ill. EPA | N. 4410024<br>E. 269191 | SLAMS - TSP |
| Springfield<br>(7280 006) | Sewage Treatment Plant<br>I55 & I72 at Old 36 | Ill. EPA | N. 4408753<br>E. 277987 | NAMS - $SO_2$<br>SPMS - WS/WD |
| Springfield<br>(7280 008) | Post Office<br>6th & Monroe | Ill. EPA | N. 4408623<br>E. 273327 | SLAMS - CO<br>SPMS - $NO/NO_2{}^d$ |
| Springfield<br>(7280 009) | Post Office<br>2105 Cook | Ill. EPA | N. 4408049<br>E. 275320 | NAMS - TSP |
| Springfield<br>(7280 010) | Public Health Warehouse<br>2875 Dirksen Ave. | Ill. EPA | N. 4413487<br>E. 277074 | SLAMS - $O_3$ |

EQUIPMENT CODE SYMBOLS

| | |
|---|---|
| TSP - Total Suspended Particulate | CO - Carbon Monoxide |
| $SO_2$ - Sulfur Dioxide | $O_3$ - Ozone |
| NO - Nitric Oxide | WS/WD - Wind Speed and Direction |
| $NO_2$ - Nitrogen Dioxide | RHC - Reactive Hydrocarbons |

n - instrument installed during 1981
d - instrument removed during 1981
NEW - site started in 1981
DISC - site discontinued in 1981

UTM COORD.

N. - Northing Coordinates
E. - Easint Coordinates

# 3.2b DIRECTORY OF SPECIAL PURPOSE AND INDUSTRIAL MONITORING SITES OPERATED DURING 1981

Following is a directory showing the privately operated monitoring sites.

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| 66 EAST CENTRAL ILLINOIS INTRASTATE | | | | |
| VERMILION COUNTY | | | | |
| GM Network: (DISC)<br>Tilton<br>(7640 001) | McVey St. | General Motors | N. 4442197<br>E. 445104 | TSP |
| Tilton<br>(7640 002) | U.S. Steel<br>W. First St. | General Motors | N. 4442043<br>E. 442265 | TSP |
| Tilton<br>(7640 003) | 7th & "J" Sts. | General Motors | N. 4439802<br>E. 443839 | TSP |
| Tilton<br>(7780 001) | North "H" St. | General Motors | N. 4440407<br>E. 444530 | TSP |
| 71 NORTH CENTRAL ILLINOIS INTRASTATE | | | | |
| BUREAU COUNTY | | | | |
| DePue<br>(0680 005) | S. W. Corner of Plant | Mobil Chemical | N. 4577240<br>E. 306660 | $SO_2$ |
| DePue<br>(0680 006) | White City Park | Mobil Chemical | N. 4577518<br>E. 308203 | $SO_2$ |
| DePue<br>(0680 007) | Met. Tower | Mobil Chemical | N. 4577271<br>E. 307055 | WS/WD |
| 72 PADUCAH-CAIRO INTERSTATE (KY, - ILL.) | | | | |
| MASSAC COUNTY | | | | |
| TVA Network:<br>Station 10 (DISC)<br>(4900 001) | Massac County | TVA | N. 4116530<br>E. 344760 | TSP, $SO_2$ |
| Station 11<br>(5060 006) | Metropolis | TVA | N. 4113250<br>E. 345400 | TSP, $SO_2$ |
| Station 16<br>(4900 002) | Massac County | TVA | N. 4118250<br>E. 338720 | $SO_2$ |
| Station 17<br>(4900 003) | Massac County | TVA | N. 4119940<br>E. 348840 | $SO_2$ |

## 1981
## SITE DIRECTORY

| STATION | ADDRESS | OWNER/ OPERATOR | UTM COORD. | EQUIPMENT |
|---|---|---|---|---|
| Station 18<br>(4900 004) | Massac County | TVA | N. 4116370<br>E. 348700 | $SO_2$ |
| Station 19<br>(4900 005) | Massac County | TVA | N. 4120180<br>E. 342600 | $SO_2$ |
| Station 23 (NEW)<br>(5060 008) | Massac County | TVA | N. 4116560<br>E. 344830 | $SO_2$ |
| 75 WEST CENTRAL ILLINOIS INTRASTATE | | | | |
| SANGAMON COUNTY | | | | |
| Springfield CWLP Network:<br>Lincoln Green<br>(7280 002) | Lincoln Green Golf Course | CWLP | N. 4402654<br>E. 277450 | $TSP^d$, $SO_2$ |
| Tansey<br>(6980 017) | Tansey Avenue | CWLP | N. 4406796<br>E. 277833 | $TSP^d$, $SO_2$ |
| Mavis<br>(6980 016) | Mavis Farm<br>Oak Hills Rd. | CWLP | N. 4401691<br>E. 281049 | $SO_2{}^d$ |
| Groth<br>(7280 001) | CWLP Maintenance Building<br>Groth Street | CWLP | N. 4406734<br>E. 276104 | $SO_2{}^d$ |
| Stevenson Tower<br>(7280 003) | I55 & Stevenson Dr. | CWLP | N. 4403432<br>E. 276314 | WS/WD, Temperature |

## 3.3 AMBIENT AIR SAMPLING METHODOLOGIES

The Illinois Ambient Air Monitoring Network is essentially two networks -- one noncontinuous or intermittent, the other continuous. Noncontinuous samplers are generally used to measure average air quality over time periods of twenty-four hours and have restricted utility for measuring short-term variations in air quality. Continuous samplers on the other hand perform constant surveillance and easily accommodate averaging periods of one hour. Continuous instruments are, therefore, necessary in areas of potential rapidly changing air quality and for measurements involving short-term (24 hours or less) ambient air standards. Continuous instruments are also necessary in situations requiring real time data for the control of air pollution episodes.

The noncontinuous network is comprised of total suspended particulate (TSP) and gas impinger samplers. These instruments are operated on a USEPA coordinated sampling schedule involving a 24-hour period every six days. Additionally, TSP samples are analyzed to provide data relative to ambient levels of selected metals and other chemical compounds.

Continuous measurements are made for sulfur dioxide, oxides of nitrogen, carbon monoxide, ozone and reactive hydrocarbons. As of February 18, 1976, new instrumentation used for the measurement of ambient concentrations of criteria air pollutants was required to be designated as a reference or equivalent method by the U.S. Environmental Protection Agency. Instrumentation existing prior to that date could continue to be used until February 18, 1980 except nitrogen dioxide which could be used until January 3, 1980 under the provisions of this regulation. Table 5 of this section contains a listing of approved continuous instruments for sulfur dioxide, ozone, carbon monoxide and nitrogen dioxide. At present, no reference method for monitoring reactive hydrocarbons has been designated. It is this continuous instrumentation coupled with a statewide telemetry system which provides the foundation of the Illinois Air Monitoring Network. Data generated in this manner is rapidly analyzed and tabulated through contemporary data processing procedures providing a near real time picture of the air environment throughout the state. A brief description of the operating principles of the instrumentation employed within the Illinois Air Monitoring Network follows.

### NONCONTINUOUS INSTRUMENTATION

### TOTAL SUSPENDED PARTICULATE (TSP) SAMPLERS

Eight by ten inch glass fiber filters are conditioned to reach a stabilized moisture content after which their weight is accurately determined. The filters are then placed on a hi-volume sampler with air drawn through them at the rate of 40 to 60 cubic feet per minute for 24 hours. These instruments ordinarily operate on a midnight to midnight schedule. The exposed glass filters are then returned to the conditioning environment and allowed to re-equilibrate with respect to moisture content. When this equilibrium has been reached, the filters are reweighed. The differential weight is divided by the total air flow to yield a concentration in particulate weight per volume of air sampled (micrograms of TSP per cubic meter of air). In general, particles between 0.1 and 100 microns in diameter can be collected. (40 CFR, Part 50, Appendix B)

Metallic Content of Particulate Samples

Subsequent to the gravametric analysis described above, representative portions of the high-volume samples are subjected to a chemical digestion followed by analysis via atomic absorption to determine the concentration of selected metals in the particular matter. These analyses are routinely performed on monthly composite samples from each site (portions of all filters exposed during a given month at a specific site are combined and analyzed). The concentrations of copper, cadmium, chromium, lead, nickel, arsenic, manganese, iron and beryllium are routinely determined and each is reported as micrograms of the metal per cubic meter of air.

Sulfate and Nitrate Concentrations of Particulate Matter

The sulfate and nitrate content of the particulate matter is also measured following a selection and digestion of representative portions of the samples. Nitrate is determined employing the Cadmium Reduction methodology while sulfate analysis is accomplished using the Methylthymol Blue method. As with metallic components, these concentrations are also reported as micrograms per cubic meter.

## IMPINGER (BUBBLER) SAMPLERS

These intermittent samplers are used to measure sulfur dioxide and nitrogen dioxide levels in ambient air. Ambient air is drawn through a solution where the desired pollutant is selectively absorbed with high efficiency. Air flows through the absorbing solutions at a rate of 0.2 liters per minute for a sampling period of 24 hours. After a sampler is collected, the solutions are returned to the laboratory for analysis. Due to thermal instability and time decomposition of the collected samples, the impinger (bubbler) samples have been discontinued by the Illinois Environmental Protection Agency as of January 1, 1978, although Cook County and City of Chicago agencies operated gas bubblers during 1980.

### Sulfur Dioxide Analysis

The absorbing solution for sulfur dioxide is a tetrachloromercurate solution. The absorbed sample is analyzed for sulfur dioxide concentration using the paraosaniline reference procedure outlined in the Federal Register. (40 CFR, Part 50, Appendix A) The concentration in solution, divided by the air flow, times the gas factor for sulfur dioxde gives the concentraton of sulfur dioxide in parts per million for that sampling period.

### Nitrogen Dioxide Analysis

The absorbing solution for nitrogen dioxide sampling is a sodium hydroxide-sodium arsenite solution and the absorbed sample is analyzed using the manual equivalent procedure specified in December, 1977. (40 CFR, Part 50, Appendix D) The solution is analyzed for concentration of nitrogen dioxide by a colorimetric method and the concentration in solution, divided by the air flow, times the gas factor gives the ambient concentration of nitrogen dioxide in parts per million.

## CONTINUOUS INSTRUMENTATION

### COEFFICIENT OF HAZE

Coefficient of haze (COH) samplers draw ambient air through a paper filter tape filter allowing for the deposition of entrained particulate matter. A photocell measures the decrease in the amount of light transmitted through the tape as a result of this depostion. This measurement can be related to the concentration of particulates per unit volume of air and is termed Coefficient of Haze (COH). Comparison between results obtained from high-volume samplers and COH samplers has shown widely varying correlations. This is apparently because the COH sampler is primarily measuring the optical properties associated with the particulates collected on the tapes while the high-volume sampler produces results which are determined by weight. In general, correlations between the two methods indicate that one COH is approximately equivalent to 125 micrograms per cubic meter measured via the high-volume method. The COH samplers offer the advantage of providing a continuous sampling methodology as the tape automatically advances from time to time to begin a new sampling and recording cycle. As a result, a few of the COH samplers are maintained within the Illinois Air Monitoring Network to provide information in the event of air stagnations and particulate episodes. However, due to the influences produced by the color and size (optical properties) of the particulates all other COH tape samplers were discontinued by the Agency as of January 1, 1978.

## BETA RADIATION PARTICULATE MONITORS

Beta radiation instruments perform in a very similar fashion to the COH tape samplers during the collection phase of operation. Ambient air is drawn through a collection medium where the particulate matter is deposited. During the measurement phase, however, a decrease in beta radiation is measured which is a direct function of the mass of the particulate matter rather than the optical properties (the major disadvantage of the COH monitor). A limited number of these monitors are under evaluation by the Agency.

## SULFUR DIOXIDE

### A. Colorimetric Monitors

Ambient air is drawn through an absorbing column where it is continuously mixed with a solution of tetrachloromercurate absorbing the sulfur dioxide. A portion of this solution is mixed with formaldehyde, sulfamic acid, and pararosaniline dye and allowed to flow through a time delay coil where mixing and chemical reaction between the sulfur dioxide and the analytical reagents take place. The resulting dye complex is spectrophotometrically analyzed using a flow cell colorimeter at a specific wave length. The change in percent transmission of the solution is related to concentration of sulfur dioxide in the ambient air. This ambient analysis procedures is identical to the reference procedure EQS-0775-001 (analysis of manually collected samples, i.e. impingers) with the exception that an absorbing coil is used to obtain a continuous sample.

### B. Coulometric Monitor

Ambient air is drawn through an acid solution of bromine and bromide ions. The ensuing chemical reaction between sulfur dioxide and bromine results in a shift of electrical equilibrium in the solution and requires an electrical current to produce sufficient bromine necessary to return to the original equilibrium. The electrical current required to reestablish this balance is proportional to the sulfur dioxide concentration of the ambient air.

### C. Pulsed Fluorescent Monitor

Ambient air is drawn into a chamber where it is pulse irradiated with ultra-violet light of a specific wavelength. The sulfur dioxide molecules present absorb photons of energy from this light. When these excited molecules revert back to their original energy state, they release energy in the form of light and the intensity of the emitted light is measured and translated into a sulfur dioxide concentration.

D. Flame Photometric Detector Monitor

Ambient air is drawn into a chamber where it is burned in a hydrogen hyperventilated air diffusion flame. The luminescence resulting from the reaction of the ambient sulfur molecules with the flame is absorbed by a photomultiplier detector. The resulting output from this detector is related to the sulfur dioxide concentration in the ambient air.

E. Second Derivative Spectrophotometric Monitor

Ambient air is drawn through a sample chamber into which ultra-violet light at a particular wavelength is directed. The second derivative spectrum of this beam is monitored continuously at a particular wavelength. The intensity of this spectrum is related to concentration of sulfur dioxide in the ambient air.

## NITROGEN DIOXIDE (Chemiluminescent Monitor)

A. Single Channel, Single Detector

Ambient air is drawn into the unit by two paths. In one path, the sample is exposed to ozone directly and the light produced by the reaction between nitric oxide (NO) and ozone is measured and calculated as nitric oxide concentration in ambient air. In the other path, the sample passes through a converter changing quanititatively the oxides of nitrogen ($NO_x$) in the sampler into nitric oxide (NO). The sample is then exposed to ozone and the light produced by the chemiluminescence measured and calculated as total oxides of nitrogen concentration in ambient air. These measurements are made alternately and then either subtracted electronically or manually to give the concentration of nitrogen dioxide in the ambient air.

B. Dual Chamber, Single Detector

The chemiluminescence reaction and detection method is the same as in "A" above, except that samples of ambient air are made simultaneously for both the nitric oxide and total oxides of nitrogen measurements rather than alternating back and forth. The detector observes the reaction chambers alternately and the results are calculated as before to give the concentration of nitrogen dioxide in the ambient air.

C. Dual Chamber, Dual Detector

The chemiluminescence reaction is the same as in "A" and "B" above, except that each of the chambers operates with its own independent detector; one measuring nitric oxide and the other measuring total oxides of nitrogen. Again, the results are calculated as before to give the concentration of nitrogen dioxide in the ambient air.

## OZONE

### A. Ultra-Violet Absorption Monitor

Ambient air is drawn through a sample chamber into which a beam of ultra-violet light of a particular wavelength is passed. This beam is monitored continuously for any decrease in intensity which is due to the absorption of incident light by ozone molecules present in the air. The decrease in light transmittance is translated into ozone concentration in the ambient air.

### B. Chemiluminescent Monitor

Ambient air is drawn into a reaction chamber where the sample is mixed with ethylene gas. Ozone reacts quantitatively with the ethylene to produce light which is detected by a photodetector and which is related to the concentration of ozone in the ambient air by its intensity.

## CARBON MONOXIDE

### A. Non-Dispersive Infrared (NDIR) Monitor

Ambient air is drawn through a sample chamber into which a beam of infrared light at a particular wavelength is passed. This beam is continuously monitored and any decrease in intensity at the specific wavelength is due to the absorption of light by the carbon monoxide molecules present. This decrease is directly related to the concentration of carbon monoxide in the ambient air.

### B. Gas Chromatography-Flame Ionization Monitor

Ambient air is drawn through a gas chromatographic column where the carbon monoxide component is separated from the other components. The carbon monoxide is then reduced to methane and burned in a hydrogen flame. The change in the electro-potential of the collector due to the increase ionization produced by this burning is translated into a concentration of carbon monoxide in ambient air.

## REACTIVE HYDROCARBON (TOTAL HYDROCARBON LESS METHANE) MONITORS

### A. Gas Chromatography-Flame Ionization Detection

Ambient air is drawn through a chromatographic column where the hydrocarbon component is then divided; one portion is totally converted to methane and introduced into a flame, the other portion is pretreated so that only the ambient methane component of the hydrocarbon sample is separated and introduced into the flame. In the flame, the burning of the methane results in a change in the electro-potential of the collectors due to the increased ionization which is correlated to the concentration of methane and total hydrocarbon as methane. Using either an electronic subtraction circuit or manual subtraction, the value for the concentration of reactive hydrocarbons in ambient air is determined.

## TABLE 5
## USEPA DESIGNATED REFERENCE AND EQUIVALENT METHODS
(Effective December 31, 1981)
## SULFUR DIOXIDE

| Designation Number | Identification | Source | Federal Register Notice Vol. | Federal Register Notice Page |
|---|---|---|---|---|
| EQS-0775-001 | Paraosaniline Method -- Technicon I (Auto-Analysis of Manually Collected Samples) | Technicon | 40 | 34024 |
| EQS-0775-002 | Paraosaniline Method -- Technicon II (Auto-Analysis of Manually Collected Samples) | Technicon | 40 | 34024 |
| EQSA-1275-005 | SM 1000 (Second Derivative Spectrophotometer) | Lear Siegler | 41 | 3893 |
| EQSA-1275-006 | SA 185-2A (Flame Photometric) | Meloy | 41 | 3893 |
| EQSA-0276-009 | 43 (Pulsed Fluorescence) | Thermo Electron | 41 | 8531 |
| EQSA-0676-010 | PW 9755 (Coulometric) | Philips | 41 | 26252 |
| EQSA-0876-011 | PW 9700 (Coulometric) | Philips | 41 | 34105 |
| EQSA-0876-013 | 8450 (Flame Photometric) | Monitor Labs | 41 | 36245 |
| EQSA-0877-024 | 500 (Coulometric) | Asarco | 42 | 44264 |
| EQSA-0678-029 | 953 (Chopped Fluorescence) | Beckman | 43 | 35995 |
| EQSA-1078-030 | 8303 (Flame Photometric) | Bendix | 43 | 50733 |

## TABLE 5 (CONT.)
## SULFUR DIOXIDE

| Designation Number | Identification | Source | Federal Register Notice Vol. | Federal Register Notice Page |
|---|---|---|---|---|
| EQSA-1078-032 | SA 285 E<br>(Flame Photometric) | Meloy | 43 | 50734 |
| EQSA-0779-039 | 8850<br>(Fluorescence) | Monitor Labs | 44 | 44616 |
| EQSA-0580-046 | SA 700<br>(Fluorescence) | Meloy | 45 | 31488 |
| EQSA-1280-049 | AM 2020<br>(Second Derivative Spectrophotometer) | Lear Siegles | 45 | 79574 |

## NITROGEN OXIDES

| Designation Number | Identification | Source | Federal Register Notice Vol. | Federal Register Notice Page |
|---|---|---|---|---|
| RRFNA-0677-021 | 8440E<br>(Chemiluminescence) | Monitor Labs | 42 | 37434 |
| RRFNA-0777-022 | 8101C<br>(Chemiluminescence) | Bendix | 42 | 37435 |
| RRFNA-0977-025 | 1600<br>(Chemiluminescence) | Columbia Scientific Instruments | 42 | 46574 |
| EQN-1277-026<br>EQN-1277-027<br>EQN-1277-028 | Sodium Arsenite Method (3) -- (Auto-Analysis of Manually Collected Samples) | Technicon | 42 | 62972 |
| RFNA-1078-031 | NA 530 R<br>(Chemiluminescence) | Meloy | 43 | 50733 |
| RFNA-0179-034 | 952-A<br>(Chemiluminescence) | Beckman | 44 | 7805 |
| RFNA-0179-035 | 14 B/E<br>(Chemiluminescence) | Thermo Electron | 44 | 7805 |
| RFNA-0279-037 | 14 D/E<br>(Chemiluminescence) | Thermo Electron | 44 | 10429 |

## TABLE 5 (CONT.)
## NITROGEN OXIDES

| Designation Number | Identification | Source | Federal Register Notice Vol. | Federal Register Notice Page |
|---|---|---|---|---|
| RFNA-0479-038 | 8101-B<br>(Chemiluminescence) | Bendix | 44 | 26792 |
| RFNA-0879-040 | 9762<br>(Chemiluminescence) | Philips | 44 | 51683 |
| RFNA-0280-042 | 8840<br>(Chemiluminescence) | Monitor Labs | 45 | 9100 |

## CARBON MONOXIDE

| Designation Number | Identification | Source | Federal Register Notice Vol. | Federal Register Notice Page |
|---|---|---|---|---|
| RFCA-0276-008 | 8501-5CA<br>(NDIR) | Bendix | 41 | 7450 |
| RFCA-0876-012 | 866<br>(NDIR) | Beckman | 41 | 36245 |
| RFCA-0177-018 | 202S<br>(NDIR) | Mine Safety | 42 | 5748 |
| RFCA-1278-033 | AQM-10<br>AQM-11<br>AQM-12<br>(NDIR) | Horiba | 43 | 58429 |
| RFCA-0979-041 | 8310<br>(NDIR) | Monitor Labs | 44 | 54545 |
| RFCA-1180-048 | APMA 300E/300SE<br>(NDIR) | Horiba | 45 | 72774 |
| RFCA-1280-050 | MASS Model 1 | Commonwealth of Mass. | 45 | 81650 |
| RFCA-0381-051 | 3003<br>(Gas Filter Correlation) | Dasibi | 46 | 20773 |
| RFCA-0981-054 | 48<br>(Gas Filter Correlation) | Thermo Electron | 46 | 47002 |

TABLE 5 (CONT.)

OZONE

| Designation Number | Identification | Source | Federal Register Notice | |
|---|---|---|---|---|
| | | | Vol. | Page |
| RFOA-1075-003 | QA 325-2R<br>(Chemiluminescence) | Meloy | 40 | 54856 |
| RFOA-1075-004 | QA 350-2R<br>(Chemiluminescence) | Meloy | 40 | 54856 |
| RFOA-0176-007 | 8002<br>(Chemiluminescence) | Bendix | 41 | 5145 |
| RFOA-1076-014<br>RFOA-1076-015<br>RFOA-1076-016 | 1100-1<br>1100-2<br>1100-3<br>(Chemiluminescence) | McMillan | 41 | 466747 |
| RFOA-1176-017 | 8410E<br>(Chemiluminescence) | Monitor Labs | 41 | 53684 |
| EQOA-0577-019 | 1003-AH<br>(UV Absorption) | Dasibi | 42 | 28571 |
| RFOA-0577-020 | 950A<br>(Chemiluminescence) | Beckman | 42 | 28571 |
| EQOA-0777-023 | PW9771<br>(Chemiluminescence) | Philips | 42 | 38931 |
| RFOA-0279-036 | CSI 2000<br>(Chemiluminescence) | Columbia Scientific | 44 | 10429 |
| EQOA-0880-047 | TE 49 U.V.<br>(U.V. Photometric) | Thermo Electron | 45 | 57168 |
| EQOA-0881-053 | 8810<br>(U.V. Photometric) | Monitor Labs | 46 | 52224 |

## 3.4 QUALITY ASSURANCE SUMMARY

The quality assurance program for the Illinois Ambient Air Monitoring Section distributes the responsibility for producing quality data to the various Unit Managers and Supervisors within the Section. The program requires documented procedures of operation and quality control in accordance with prescribed Federal and State requirements. Each Unit must adequately develop and consistently follow the appropriate procedures. The Section Quality Assurance Office is authorized to independently audit and document the effectiveness of the procedures within each Unit, and to report the results to the Section Manager. The Quality Assurance Office utilizes system and performance audits in assessing each Unit to ensure a thorough inspection. Upon review of the Quality Assurance report, the Section Manager may initiate changes to areas of the quality assurance program which are deemed as unsatisfactory.

Municipal, county, industrial, or other air monitoring agencies impacting the Illinois State Implementation Plan are also required through Federal and State regulations to maintain quality assurance programs. As before, the Quality Assurance Office of the Ambient Air Monitoring Section is responsible for auditing and documenting the effectiveness of these programs. Each Quality Assurance report is reviewed by the Section Manager and then sent to the Manager of the IEPA Division of Air Pollution Control to initiate changes to deficient areas.

Interested parties may obtain specific Quality Assurance reports or information on the quality assurance program for the Illinois Ambient Air Monitoring Section by contacting:

Ambient Air Monitoring Section
Illinois Environmental Protection Agency
Division of Air Pollution Control
2200 Churchill Road
Springfield, Illinois 62706

# 4.0 STATEWIDE SUMMARY OF AIR QUALITY DATA - 1981

## 4.1 AIR QUALITY DATA INTERPRETATION

Ambient air measurements are used as the basis for understanding and evaluating air quality. To ensure optimum use of these measurements, the Agency periodically reviews the deployment of sensors in its air monitoring network. Nevertheless, no finite number of samplers can completely document air quality. Ambient air pollution measurements should be used in conjunction with meteorological and emission data and mathematical modeling to yield more comprehensive understanding of a given region.

In order to provide a uniform procedure for determining whether a sufficient amount of air quality data has been collected by a sensor in a given time period (year, quarter, month, day, etc.) to be representative of that time period, a minimum statistical selection criteria was developed.

In order to calculate an annual average for noncontinuous sites, a minimum of 67% of the data that was attempted to be collected must be available, i.e., 40 samples for a once every six day schedule (total possible of 60 samples). Additionally in order to have proper quarterly balance, each site on an every sixth day schedule must have at least 8 samples per quarter. This provides for a 20% balance in each quarter if the minimum required annual sampling is achieved.

For the composite results: heavy metals, sulfates and nitrates, where the individual samples are combined into monthly composites, a total of nine valid monthly composites are needed for a valid annual average. For the lead results where a quarterly average is needed for comparison to the standard, at least two valid monthly composites are needed in each quarter for a valid quarterly average.

To determine an annual average for continuous data 75% of the total possible yearly observations are necessary, i.e., a minimum of 6570 hours were needed in 1981. In order to provide a balance between the respective quarters, each quarter must have at least 1300 hours which is 20% of the 75% minimum annual requirement.

To calculate quarterly averages at sites which do not meet the annual criteria, 75% of the total possible observations in a quarter are needed, i.e., a minimum of 1647 hours.

Monthly averages also require 75% of the total possible observations in a month, i.e., 540 hours as a minimum.

Additionally, for short-term running averages (24 hour, 8 hour, 3 hour) 75% of the data during the particular time period is needed, i.e., 18 hours for a 24-hour average, 6 hours for an 8-hour average and 3 hours for a 3-hour average.

Data listed as not meeting the minimum statistical selection criteria in this report were so noted after evaluation using the criteria above.

The criteria for calculating a valid annual average requires 75% of the number of hours in the year (6570 hours for 1981). Although short term averages (3, 8, 24 hours) have been computed for certain sites not meeting the annual criteria, these averages may not be representative of an entire year's air quality. In certain circumstances where even the 75% criteria is met, the number and/or magnitude of short term averages may not be directly comparable from one year to the next because of seasonal distributional differences.

For summary purposes, the data is expressed in the number of figures to which the raw data is validated. Extra figures may be carried in the averaging technique, but the result is rounded to the appropriate number of figures. For example, the values 9, 9, 10 are averaged to give 9; whereas the values 9.0, 9.0, 10.0 are averaged to 9.3. The raw data itself should not be expressed to more significant figures than the sensitivity of the monitoring methodology allows.

In the past, the Illinois EPA has compared data to the air quality standards based on the number of significant figures contained in the data itself, i.e., an 8-hour CO average of 9.1 ppm was taken as an exceedance of the 9 ppm standard. However, with the promulgation of the 0.12 ppm ozone standard, the USEPA has indicated that an ozone hourly value must be 0.125 ppm or higher to exceed the standard. Thus, in order to be consistent for all pollutants, comparison to the standards will be made with the data rounded to the number of significant figures given in the standard. Peak averages, though, will be expressed to the number of significant figures appropriate to that monitoring methodology.

Five the seven National Ambient Air Quality Standards (NAAQS) -- suspended particulate (TSP), sulfur dioxide ($SO_2$), carbon monoxide (CO), ozone ($O_3$), and non-methane hydrocarbons (N-MHC) -- have short-term standards for ambient air concentrations (24 hours or less) not to be exceeded more than once per year (ozone: expected number of exceedences to average not more than one in a three year period). The standards are promulgated in this manner in order to protect the public from excessive levels in pollution both in terms of acute and chronic health effects.

Air pollution itself is a highly variable phenomenon. Some of the factors effecting pollution concentrations are (a) meteorological: atmospheric stability, wind speed and direction, precipitation, solar radiation, temperature, etc.; (b) geographical: urban or rural, valleys or plains and (c) economic: concentrations of industries, boom or recession, weekday or weekend. These variations often can be discerned as a pattern on a diurnal, seasonal or longer range basis.

Interpretation of data must necessarily consider the question of how well the air quality data represents the actual air quality. Certain statistical procedures are useful in describing and interpreting air quality data. Some of the formulas used in the compilation of this report, along with examples of their use, are given in Appendix A.

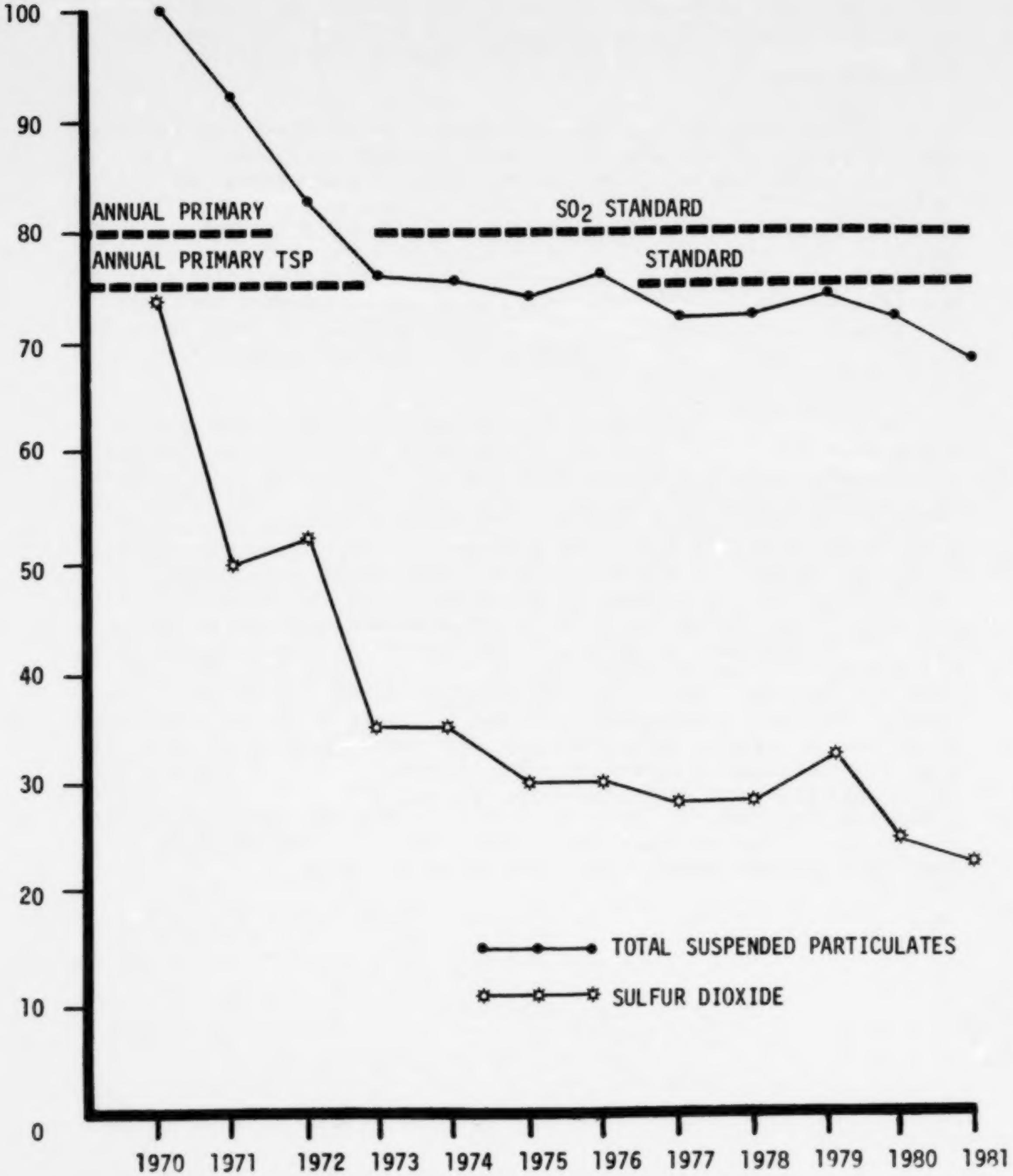
It is generally assumed that, if an instrument monitors continually, at the end of the year the air quality at that site is completely specified to within the accuracy of the instrument. However, monitors for suspended particulates and the $SO_2/NO_2$ bubblers operate on a noncontinuous basis -- generally once every six days and in some cases every three days. In these situations, there is a question regarding how well the non-continuous data describes the air quality on days when monitoring is not conducted. Following Hunt (1972), confidence intervals can be determined for the noncontinuous data with the resultant true annual mean falling within a determined range at this specified confidence level.

Larsen (1971) indicates that the distribution of pollutant concentrations measured throughout the year is, in many instances, log-normal, i.e., the logarithm of the concentrations follows the well known normal statistical distribution. Thus normal statistics can be applied to these cases. The pertinent parameters used in describing a log-normal distribution are the geometric mean, which specifies the central tendency (50th percentile point) of the values and the geometric standard deviation which specifies the spread of the distribution. A large geometric standard deviation indicates a large spread in the data. As an example, if every value for the year was identical, there would be no spread and the geometric standard deviation would be 1.0.

Once data has been compiled over a period of years, it is possible to determine trends mathematically. The Daniel's Test using the Spearman Rank Correlation Coefficient as described and recommended in Guidelines for the Evaluation of Air Quality Trends (OAQPS No. 1.2-014) can be used for these determinations. (See Appendix A for an example calculation using this method.) A minimum of four years of valid data are required to use this method. A significant result either upward or downward indicates only the consistency of the direction of the change and not the magnitude of the change. In order to estimate the magnitude of the trend, it is necessary to apply a linear regression (least-squares fit) to the data. The result is the average rate of change over the time period of interest. Care should be exercised in the use of calculated trends. The factors contributing to the existence or absence of a trend at one site could be totally different than those contributing at another site. In fact, over a period of years, a site can show no trend by the statistical technique mentioned above, and yet have an overall decrease in concentration levels. This would indicate that the direction of the yearly changes have not been consistent. Thus each site should be completely analyzed before final conclusions are drawn.

FIGURE 1

STATEWIDE POLLUTION TRENDS*



*Arithmetic average of annual means, geometric for TSP and arithmetic for $SO_2$, of all sites which have valid annual averages in each year.

## 4.2 TOTAL SUSPENDED PARTICULATES SUMMARIES

Figure 1 depicts the statewide trend for total suspended particulates (TSP) from 1970 through 1981. The statewide average in each year is determined by taking the arithmetic average of all the valid annual geometric means in that year. The overall trend is downward with the greatest decrease occurring from 1970 - 1973. Since 1973 the decrease has been more gradual with upward interruptions due to adverse meteorology in 1976 and 1979. In 1981 the statewide avearage was 68 ug/m$^3$ compared with 72 ug/m$^3$ in 1980 and 72 ug/m$^3$ in 1979. Part of the decrease in 1981 may be due to abnormally high precipitation in Illinois during 1981 which would tend to minimize TSP concentrations.

Table 6 is the ranking (highest to lowest) of the 98 sites having valid annual averages in 1981. Of the 98 sites, 22 (22%) had annual averages above the annual primary standard of 75 ug/m$^3$ and another 32 sites (33%) had annual averages in excess of the annual secondary standard of 60 ug/m$^3$. The percentage above the primary standard is much lower than the 36% above in 1980; the percentage above the secondary standard is slightly lower than the 37% above in 1980. The highest annual average in the state in 1981 was 190 ug/m$^3$ recorded at 2001 E. 20th Street in Granite City. This value is greater than the highest annual average of 170 ug/m$^3$ recorded in 1980. The lowest annual average in the State in 1981 was 39 ug/m$^3$ recorded in Lake Bluff.

Table 7 lists the sites recording excursions of the 24-hour primary standard of 260 ug/m$^3$, the date of occurrence, and the concentration. During 1981 at least some TSP data was collected at 116 sites even though 98 recorded sufficient data for valid annual averages. A total of 13 sites (13%) recorded at least one excursion. Of the 13 sites having excursions only 3 (all in Granite City) recorded more than one excursion and are in violation of the standard. The monitoring site at 2001 E. 20th in Granite City had 13 excursions. The highest 24-hour average in Illinois in 1981 was 889 ug/m$^3$ recorded at the Norfolk and Western site in Granite City.

## 4.3 SULFUR DIOXIDE SUMMARIES

Figure 1 depicts the statewide trend for sulfur dioxide from 1970 through 1982. The statewide average for each year is determined by taking the arithmetic average of all valid annual arithmetic means in that year. The overall trend is downward with the largest decrease occurring from 1970 through 1973 and a more gradual decrease occurring since then. The statewide average in 1981 was 22 ug/m$^3$ (.008 ppm) compared with 24 ug/m$^3$ (.009 ppm) in 1980 and 32 ug/m$^3$ (.012 ppm) in 1979.

Table 8 is the ranking (highest to lowest) of the 25 sites having valid annual averages in 1981. All $SO_2$ data from monitors operating in Illinois in 1981 were based on continuous methodologies instead of non-continuous gas bubblers as some have been in the past. There were no violations of the annual primary standard of 0.03 ppm. The highest annual average was 0.021 ppm recorded in East St. Louis. The lowest annual average was 0.004 ppm recorded in Elgin, LaSalle and Rockford.

Table 9 lists excursions of the 24-hour primary standard of 0.14 ppm and the 3-hour secondary standard of 0.5 ppm. There were no excursions of the 3-hour standard in the statewide network in 1981. There was only one excursion (no violation) of the 24-hour standard in East St. Louis with a value of 0.146 ppm. Other excursions of the 24-hour standard recorded in industrial networks are given in Section 6.

## 4.4 OZONE SUMMARIES

A total of 44 locations in Illinois had at least some ozone monitoring conducted during 1981. Of these 44 locations, 37 had over 75% data capture during the ozone season (April - October).

In the data summary by Air Quality Control Region (AQCR), the ozone data is listed by the number of hours with ozone concentrations greater than 0.08 ppm (State Standard in 1981) and the number of days with ozone greater than 0.12 ppm (Federal Standard). Table 10 lists days on which excursions of the 0.12 ppm standard (hourly averages of 0.125 ppm or higher) were recorded, the site recording the excursion, and the maximum hourly concentration. A total of 18 sites recorded at least one day above 0.12 ppm. All sites recording excursions of the standard were either in the Chicago or St. Louis metropolitan areas, or in downwind areas impacted by them in the cases of LaSalle, Waterloo, and Nilwood. Waukegan recorded the most days above 0.12 ppm with four. Chicago - Taft High School recorded the highest hourly concentration in 1981 -- 0.176 ppm. Two other sites exceeded the Yellow Alert level of 0.170 ppm: Arlington Heights, 0.173 ppm; Waukegan, 0.172 ppm. It is interesting to note that in the Chicago area, of 23 site-excursion days, 19 occurred on only three different days: July 7, July 17, and July 18. Thus, overall there were very few high ozone days in 1981. Part of the reason for fewer high days was abnormally high precipitation statewide in 1981. This was particularly true in the St. Louis metropolitan area where six sites recorded more than one day above 0.12 ppm in 1980 but none recorded more than one day above 0.12 ppm in 1981.

In 1982 the Episode Unit for the Ambient Air Monitoring Section was responsible for issuing ozone summaries and advisories to the public. These summaries were issued on a daily basis from May 1 to September 30, and outside of this period special ozone advisories were issued as conditions dictated. The ozone summary was issued each day at 3:00 p.m. CDT via the Illinois Weather Wire teletype circuit. The summary contained for each ozone monitoring site, the highest 2-hour average concentration on the previous calendar day, the current day's high 2-hour average concentration up to 2 p.m. CDT, and a general forecast of expected ozone advisory conditions. For an area to be listed as in advisory, the 2-hour concentration had to reach or exceed 70 ppb in the calendar day or the hourly concentration at 2 p.m. CDT had to be 65 ppb or greater and increasing, all of this coupled with meteorological conditons that indicate the next day's highest 2-hour average would also exceed 70 ppb.

At least one city or area was placed in ozone advisory on 38 out of 153 days during the 1981 ozone season. This represents a decrease over 1980 when 72 days had one or more sites in advisory and 1979 when 60 advisory days were recorded. Edwardsville and Collinsville had the most advisories issued in 1981 with 20. After advisories, the next alert stage is the Yellow Alert when hourly ozone concentrations equal or exceed 170 ppb and are expected to occur at that level again the next day. During 1981, only one Yellow Alert was issued, occurring on August 1 for the Waukegan area.

## 4.5 NITROGEN DIOXIDE SUMMARIES

A total of 21 sites had valid annual averages for nitrogen dioxide in 1981. Table 11 is the ranking (highest to lowest) of those sites. The 1981 data show a continuation of the decrease in $NO_2$ concentrations in the Chicago area started in 1980. None of the sites exceeded the 0.05 ppm annual standard. Cicero had the highest annual average with a value of 0.050 ppm. The lowest annual average was 0.029 ppm recorded in Chicago at the South Water Filtration Plant.

## 4.6 CARBON MONOXIDE SUMMARIES

During 1981 seven sites recorded excursions of the 8-hour primary standard of 9 ppm while three of these sites, Chicago: State Office Building and Logan Square, and Springfield recorded more than one excursion and are in violation of the standard. Table 12 lists the date, time period, and maximum 8-hour average for each CO excursion. Springfield recorded the highest 8-hour average with a value of 11.1 ppm. The State Office Building site in Chicago had only three excursions in 1981 continuing the downward trend since 1978. Part of the decrease in 1981 may be due to construction activity in the area which may affect the street canyon influence and improve dispersion. There were no excursions of the 1-hour primary standard of 35 ppm in 1981. The highest 1-hour average was 23.1 ppm, also recorded in Springfield.

## 4.7 NON-METHANE HYDROCARBON SUMMARIES

Two sites were operated for a limited period during the summer of 1981 in the Chicago area. Both sites recorded many excursions of the 6-9 a.m.

hydrocarbon standard: State Office Building, 58 out of 64 days (91%); and Northwestern University, 47 out of 62 days (76%). The highest 6-9 a.m. average was 2.0 ppm recorded at the State Office Building site.

## 4.8 LEAD SUMMARIES

Lead results were obtained from sites that also monitored for total suspended particulates. Table 13 lists the sites recording violations of the quarterly lead standard of 1.5 ug/m$^3$. Two sites, both in Granite City, violated the lead standard. The site at 15th and Madison had three quarters above the standard and the site at 20th and Adams had one quarter above. The highest quarterly average was 7.27 ug/m$^3$ recorded at 15th and Madison in Granite City. This is the highest quarterly lead average ever recorded in Illinois.

TABLE 6

# 1981
# STATEWIDE TOTAL SUSPENDED PARTICULATE RANKINGS

| RANKING | STATION | ADDRESS | ANNUAL GEOMETRIC MEAN (UG/M$^3$) |
|---|---|---|---|
| 1 | Granite City | 2001 E. 20th | 190 |
| 2 | Granite City | 15th & Madison | 139 |
| 3 | Granite City | Norfolk & Western | 137 |
| 4 | Chicago: Washington H.S. | 3500 E. 114th St. | 111 |
| 5 | Granite City | 23rd & Madison | 108 |
| 6 | Granite City | 23rd & Nameoki | 106 |
| 7 | East St. Louis | 13th & Tudor | 105 |
| 8 | Decatur | 2300 Geddes | 97 |
| 9 | Granite City | Roosevelt & Rock Rd. | 96 |
| 10 | Chicago: Chicago Ave. Pump. Sta. | 805 N. Michigan Ave. | 91 |
| 11 | Granite City | 20th & Adams | 88 |
| 12 | Chicago: Addams Elem. Sch. | 10810 S. Ave. "H" | 86 |
| 13 | Blue Island | 12700 Sacramento | 84 |
| 13 | Chicago: Anthony Elem. Sch. | 9800 S. Torrence | 84 |
| 15 | Milan | 125 W. 2nd Ave. | 83 |
| 16 | Wood River | 54 N. Walcott | 80 |
| 17 | Decatur | 1808 E. Locust | 77 |
| 18 | Bedford Park | 6535 S. Central | 76 |
| 19 | Bradley | 610 E. Liberty | 76 |
| 19 | Cicero | 15th St. & 50th Ave. | 76 |
| 19 | Chicago: Farr Dormitory | 3300 S. Michigan Ave. | 76 |
| 19 | Granite City | 2040 Johnson Ave. | 76 |
|  | Primary Standard |  | 75 |
| 23 | Chicago: Carver H.S. | 801 E. 133rd Pl. | 75 |
| 23 | Rockdale | Volunteer Fire Dept. | 75 |
| 25 | Alton | 103 E. 3rd St. | 73 |
| 25 | Summit | 60th St. & 74th Ave. | 73 |
| 27 | Chicago: Hale Elem. Sch. | 6140 S. Melvina | 72 |
| 27 | Lyons | 4043 Joliet Ave. | 72 |
| 29 | Calumet City | 755 Pulaski Rd. | 71 |
| 29 | Chicago: Cooley Vocational H.S. | 1450 Larrabee | 71 |
| 31 | Harvey | 157th & Lexington | 70 |
| 31 | Peoria | 610 N.E. Jefferson | 70 |
| 33 | Bensenville | Main & York | 69 |
| 33 | Chicago: Chicago Vocational H.S. | 2100 E. 87th St. | 69 |
| 33 | Franklin Park | 3400 N. Rose St. | 69 |
| 33 | Joliet | 1425 N. Broadway | 69 |
| 33 | Rock Island | 1528 3rd Ave. | 69 |
| 38 | Decatur | 600 E. Garfield | 67 |
| 38 | East Peoria | 235 E. Washington | 67 |
| 38 | Joliet | Midland & Campbell | 67 |
| 41 | Belleville | 101 S. Illinois | 66 |
| 41 | Chicago: South Water Filt. Plt. | 3300 E. Cheltenham | 66 |
| 41 | Collinsville | 115A W. Main | 66 |
| 44 | Cahokia | 1201 St. Clement | 65 |
| 44 | Chicago: Logan Square | 2940 W. Cortland | 65 |
| 46 | Chicago: Calumet H.S. | 8131 S. May St. | 64 |
| 46 | East Moline | 1400 13th St. | 64 |
| 46 | River Forest | Lathrop & Oak | 64 |
| 49 | Oglesby | 110 W. 2nd St. | 63 |
| 50 | Arlington Hts. | 33 S. Arlington Hts. Rd. | 62 |
| 50 | Petersburg | 7th & Jackson | 62 |
| 52 | Galesburg | 40 E. Simmons | 61 |
| 52 | Hillside | Wolf Rd. & Harrison | 61 |
| 52 | Springfield | 2105 E. Cook St. | 61 |
|  | Secondary Standard |  | 60 |
| 55 | Braidwood | Sewage Plant | 60 |
| 55 | Morton Grove | 9111 Waukegan Rd. | 60 |
| 55 | Niles | 8955 Greenwood Ave. | 60 |
| 58 | Chicago Heights | Dixie Hwy & 10th St. | 59 |
| 58 | Chicago: Lakeview H.S. | 4015 N. Ashland | 59 |
| 58 | Midlothian | 15202 Crawford Ave. | 59 |
| 58 | Peoria | 1604 Detweiller | 59 |
| 62 | Edwardsville | Poag Rd. | 58 |
| 62 | Elmhurst | 118 Schiller | 58 |
| 62 | Naperville | 175 Jackson St. | 58 |
| 62 | Quincy | 9th & Vermont | 58 |
| 66 | Flossmoor | 999 Kedzie | 57 |
| 66 | South Beloit | Wheeler Ave. at Washington | 57 |
| 68 | Addison | 130 W. Army Trail Rd. | 56 |

TABLE 6 (CONT.)

## 1981
## STATEWIDE TOTAL SUSPENDED PARTICULATE RANKINGS

| RANKING | STATION | ADDRESS | ANNUAL GEOMETRIC MEAN (UG/M$^3$) |
|---|---|---|---|
| 68 | DePue | 1401 Marquette | 56 |
| 68 | Des Plaines | 1755 S. Wolf Rd. | 56 |
| 68 | Lockport | 5th & Madison | 56 |
| 68 | Oak Park | 834 Lake St. | 56 |
| 68 | Waterloo | U.S.D.A. Building | 56 |
| 74 | Chicago: Sullivan H.S. | 6631 N. Bosworth Ave. | 55 |
| 74 | Decatur | 750 E. Lake Shore Dr. | 55 |
| 74 | Elgin | 150 Dexter | 55 |
| 74 | Joliet | 1216 Houbolt St. | 55 |
| 78 | Champaign | 2125 S. First | 54 |
| 78 | Ottawa | 211 E. Main | 54 |
| 78 | Palatine | 1000 Quentin Rd. | 54 |
| 81 | Alsip | 4500 W. 123rd St. | 53 |
| 81 | DeKalb | 650 N. 1st St. | 53 |
| 81 | Joliet | 501 Ella Ave. | 53 |
| 81 | Moline | 3600 23rd Ave. | 53 |
| 81 | Springfield | 2200 Churchill Rd. | 53 |
| 81 | Wheaton | 201 Reber St. | 53 |
| 87 | Aurora | 770 N. Michels | 52 |
| 87 | Rockford | 333 15th St. | 52 |
| 87 | West Chicago | 128 W. McConnell Ave. | 52 |
| 90 | Darien | 1410 75th St. | 51 |
| 90 | Evanston | 1454 Elmwood | 51 |
| 92 | Mt. Vernon | 601 N. 18th St. | 50 |
| 93 | Romeoville | Naperville Rd. | 49 |
| 93 | Wilmette | 9th St. & Central Ave. | 49 |
| 95 | Glen Ellyn | 494 Pennsylvania St. | 47 |
| 96 | Cary | First & Three Oaks Rd. | 46 |
| 97 | Waukegan | Golf & Jackson | 42 |
| 98 | Lake Bluff | 121 E. Sheridan Pl. | 39 |

TABLE 7

# 1981

# TOTAL SUSPENDED PARTICULATE VALUES IN EXCESS OF THE 24-HOUR PRIMARY STANDARD OF 260 MICROGRAMS PER CUBIC METER

| STATION | ADDRESS | DATE | VALUE (UG/M³) |
|---|---|---|---|
| 66 EAST CENTRAL ILLINOIS INTRASTATE | | | |
| CHAMPAIGN COUNTY | | | |
| Champaign | 2125 S. First | April 28 | 321 |
| 67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.) | | | |
| COOK COUNTY | | | |
| Blue Island | 12700 Sacramento | April 16 | 350 |
| Palatine | 1000 Quentin Rd. | July 4 | 265 |
| Chicago: | | | |
| Chicago Vocational H.S. | 2100 E. 87th St. | February 15 | 311 |
| KANKAKEE COUNTY | | | |
| Bradley | 610 E. Liberty | April 4 | 338 |
| 70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.) | | | |
| MADISON COUNTY | | | |
| Granite City* | 2001 E. 20th | January 16 | 294 |
| | | February 3 | 286 |
| | | February 27 | 285 |
| | | April 4 | 306 |
| | | April 10 | 289 |
| | | April 28 | 334 |
| | | May 4 | 329 |
| | | June 15 | 391 |
| | | August 2 | 304 |
| | | September 19 | 341 |
| | | September 25 | 269 |
| | | October 1 | 328 |
| | | November 18 | 305 |
| Granite City* | 15th & Madison | April 4 | 261 |
| | | September 25 | 298 |
| | | November 18 | 357 |
| Granite City* | Norfolk & Western | January 16 | 889 |
| | | August 8 | 356 |
| | | October 1 | 369 |
| | | November 6 | 534 |
| Granite City | 2040 Johnson Ave. | April 4 | 265 |
| Granite City | 23rd & Nameoki | April 4 | 288 |
| Wood River | 54 N. Walcott | August 14 | 314 |
| 75 WEST CENTRAL ILLINOIS INTRASTATE | | | |
| MACON COUNTY | | | |
| Decatur | 2300 Geddes | April 4 | 263 |

*This station is in violation of the 24-Hour Primary Standard.

TABLE 7 (CONT.)

## 1981

## TOTAL SUSPENDED PARTICULATE VALUES IN EXCESS OF THE 24-HOUR PRIMARY STANDARD OF 260 MICROGRAMS PER CUBIC METER

| STATION | ADDRESS | DATE | VALUE (UG/M$^3$) |
|---|---|---|---|
| MENARD COUNTY | | | |
| Petersburg | 7th & Jackson | February 3 | 372 |

TABLE 8

## STATEWIDE SULFUR DIOXIDE RANKINGS

| RANKING | STATION | ADDRESS | ANNUAL ARITHMETIC MEAN (PPM) |
|---|---|---|---|
| | Primary Standard | | .03 |
| 1 | East St. Louis | 13th & Tudor | .021 |
| 2 | Wood River | 54 N. Walcott | .013 |
| 3 | Granite City | 2301 Adams | .012 |
| 4 | Alton | 2708 Edwards | .011 |
| 4 | Calumet City | 868 Marquette | .011 |
| 4 | Chicago: State Office Building | 160 N. LaSalle | .011 |
| 7 | Chicago: Northwestern University | Huron & Fairbanks | .010 |
| 7 | Lyons | 4043 Joliet Ave. | .010 |
| 9 | Cahokia | 1201 St. Clement | .009 |
| 9 | Chicago Heights | Dixie Hwy. & 10th St. | .009 |
| 9 | North Riverside | 2350 DesPlaines Ave. | .009 |
| 9 | Skokie | 9800 Lawler | .009 |
| 9 | Springfield | Sewage Plant | .009 |
| 14 | Edwardsville | Poag Road | .008 |
| 15 | Joliet | Joliet & Benton | .007 |
| 15 | Marion | 2209 W. Main | .007 |
| 15 | Peoria | Marina | .007 |
| 18 | Glen Ellyn | 309 Wilson | .006 |
| 18 | Pekin | 272 Derby | .006 |
| 18 | Waukegan | Golf & Jackson | .006 |
| 21 | Moline | 30 18th St. | .005 |
| 21 | Peoria | Hurlburt & MacArthur | .005 |
| 23 | Elgin | 665 Dundee Rd. | .004 |
| 23 | LaSalle | 541 Chartres | .004 |
| 23 | Rockford | 1528 18th Ave. | .004 |

TABLE 9

## 1981

## SULFUR DIOXIDE IN EXCESS OF THE PRIMARY (24-HOUR) AND SECONDARY (3-HOUR) SHORT TERM STANDARDS[a]

| STATION | ADDRESS | DATE | AVERAGING TIME | NUMBER[◊] OF EXCURSIONS | TIME PERIOD | MAXIMUM AVERAGE (PPM) |
|---|---|---|---|---|---|---|
| 70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.) | | | | | | |
| ST. CLAIR COUNTY | | | | | | |
| East St. Louis | 13th & Tudor | September 10-11 | 24 | 1 | 05-05 | .146 |

[a] The 24-Hour Primary Standard is 0.14 parts per million; the 3-Hour Secondary Standard is 0.50 parts per million.
[◊] Non-overlapping averages greater than the Standard.

# 1981

# OZONE IN EXCESS OF THE PRIMARY STANDARD OF ONE HOUR PER DAY GREATER THAN 0.12 PARTS PER MILLION

| STATION | ADDRESS | DATE | MAXIMUM VALUE (PPM) |
|---|---|---|---|
| 67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.) | | | |
| COOK COUNTY | | | |
| Arlington Heights | 1211 New Wilke | July 7 | 173 |
| Evanston | 531 Lincoln | July 18 | .129 |
| | | August 1 | .151 |
| North Riverside | 2350 Des Plaines | July 7 | 153 |
| Skokie | 9800 Lawler | July 7 | .144 |
| | | July 17 | .130 |
| | | July 18 | .142 |
| Chicago: | | | |
| Museum of Science & Industry | 57th & Museum | July 7 | .131 |
| Roseland | 351 W. 104th St. | July 7 | .167 |
| | | July 17 | .129 |
| Stevenson Elem. Sch. | 8010 S. Kostner | July 7 | .139 |
| Taft H.S. | 6545 W. Hurlbut | July 7 | .176 |
| | | July 17 | .141 |
| KANE COUNTY | | | |
| Elgin | 665 Dundee | July 3 | .138 |
| LAKE COUNTY | | | |
| Deerfield | 1321 Wilmot | July 7 | .141 |
| | | July 17 | .161 |
| Libertyville | 1441 Lake | July 7 | .163 |
| | | July 17 | .138 |
| Waukegan | Golf & Jackson | July 11 | .133 |
| | | July 17 | .127 |
| | | July 18 | .128 |
| | | August 1 | .172 |
| McHENRY COUNTY | | | |
| Cary | First St. & Three Oaks | July 7 | .164 |
| 70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.) | | | |
| MADISON COUNTY | | | |
| Alton | 2708 Edwards | September 12 | .127 |
| Wood River | 54 N. Walcott | September 12 | .126 |
| MONROE COUNTY | | | |
| Waterloo | USDA Building | July 10 | .128 |
| 71 NORTH CENTRAL ILLINOIS INTRASTATE | | | |
| LaSALLE COUNTY | | | |
| LaSalle | 541 Chartres | August 19 | .127 |
| | | August 21 | .128 |

TABLE 10 (CONT.)

# 1981

# OZONE IN EXCESS OF THE PRIMARY STANDARD OF ONE HOUR PER DAY GREATER THAN 0.12 PARTS PER MILLION

| STATION | ADDRESS | DATE | MAXIMUM VALUE (PPM) |
|---|---|---|---|
| 75 WEST CENTRAL ILLINOIS INTRASTATE | | | |
| MACOUPIN COUNTY | | | |
| Nilwood | IEPA Trailer | August 14 | .125 |

TABLE 11

## STATEWIDE NITROGEN DIOXIDE RANKINGS

| RANKING | STATION | ADDRESS | ANNUAL ARITHMETIC MEAN (PPM) |
|---|---|---|---|
| | ------------Primary Standard------------ | | .05 |
| 1 | Cicero | 15th St. & 50th Ave. | .050 |
| 2 | Blue Island | 12700 Sacramento | .049 |
| 3 | Morton Grove | 9111 Waukegan | .048 |
| 3 | Summit | 60th & 74th Ave. | .048 |
| 5 | Alsip | 4500 W. 123rd St. | .047 |
| 5 | Des Plaines | 1755 S. Wolf Rd. | .047 |
| 7 | Oak Park | 834 Lake St. | .046 |
| 8 | Hillside | Wolf Rd. & Harrison | .045 |
| 9 | Chicago: GSA Building | 538 S. Clark | .044 |
| 10 | Wilmette | 9th St. & Central Ave. | .043 |
| 11 | Harvey | 157th & Lexington | .042 |
| 12 | Chicago: Edgewater | 5358 N. Ashland | .041 |
| 13 | Chicago: State Office Building | 160 N. LaSalle | .038 |
| 14 | Chicago: Cooley Vocational H.S. | 1450 Larrabee | .037 |
| 14 | Flossmoor | 999 Kedzie | .037 |
| 16 | Chicago: Steinmetz H.S. | 3030 N. Mobile | .035 |
| 16 | Chicago: Stevenson Elem. Sch. | 8010 S. Kostner | .035 |
| 16 | Chicago: Taft H.S. | 6545 W. Hurlbut | .035 |
| 19 | Chicago: Northwestern University | Huron & Fairbanks | .032 |
| 20 | Chicago: Addams Elem. Sch. | 10810 S. Ave. "H" | .031 |
| 21 | Chicago: South Water Filt. Plant | 3300 E. Cheltenham | .029 |

TABLE 12

## 1981

## CARBON MONOXIDE IN EXCESS OF THE 8-HOUR PRIMARY STANDARD OF 9 PARTS PER MILLION

| STATION | ADDRESS | DATE | TIME PERIOD | NUMBER OF 8-HOUR AVERAGES >9 PPM◊ | MAXIMUM 8-HOUR AVERAGE (PPM) |
|---|---|---|---|---|---|
| 65 BURLINGTON-KEOKUK INTERSTATE (IOWA - ILL.) | | | | | |
| PEORIA COUNTY | | | | | |
| Peoria | Glen & University | October 27 - 28 | 1600 -0200 | 1 | 9.7 |
| 67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.) | | | | | |
| COOK COUNTY | | | | | |
| Chicago: | | | | | |
| Logan Square* | 3228 W. Palmer | July 31 - Aug. 1 | 1900 - 0600 | 1 | 10.3 |
| | | October 27 - 28 | 1700 - 0100 | 1 | 9.6 |
| State Office Building* | 160 N. LaSalle | January 23 | 1200 - 2000 | 1 | 9.6 |
| | | February 10 | 0900 - 2000 | 1 | 10.6 |
| | | February 20 | 1000 - 1800 | 1 | 9.6 |
| WILL COUNTY | | | | | |
| Joliet | 71 N. Ottawa | February 10 | 1000 - 1800 | 1 | 9.5 |
| 70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.) | | | | | |
| MADISON COUNTY | | | | | |
| Granite City | 2001 Edison | October 16 | 0800 - 1900 | 1 | 10.6 |
| 73 ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILL. - WIS.) | | | | | |
| WINNEBAGO COUNTY | | | | | |
| Rockford | 425 E. State | January 23 | 1600 - 2400 | 1 | 9.5 |
| 75 WEST CENTRAL ILLINOIS INTRASTATE | | | | | |
| SANGAMON COUNTY | | | | | |
| Springfield* | 6th St. & Monroe | January 20 | 0600 - 2200 | 2 | 11.1 |
| | | January 30 | 0900 - 2100 | 1 | 10.9 |

◊These are non-overlapping 8-hour averages.

*This station is in violation of the 8-Hour Primary Standard.

TABLE 13

## 1981
## LEAD VALUES IN EXCESS OF THE QUARTERLY PRIMARY STANDARD OF 1.5 MICROGRAMS PER CUBIC METER

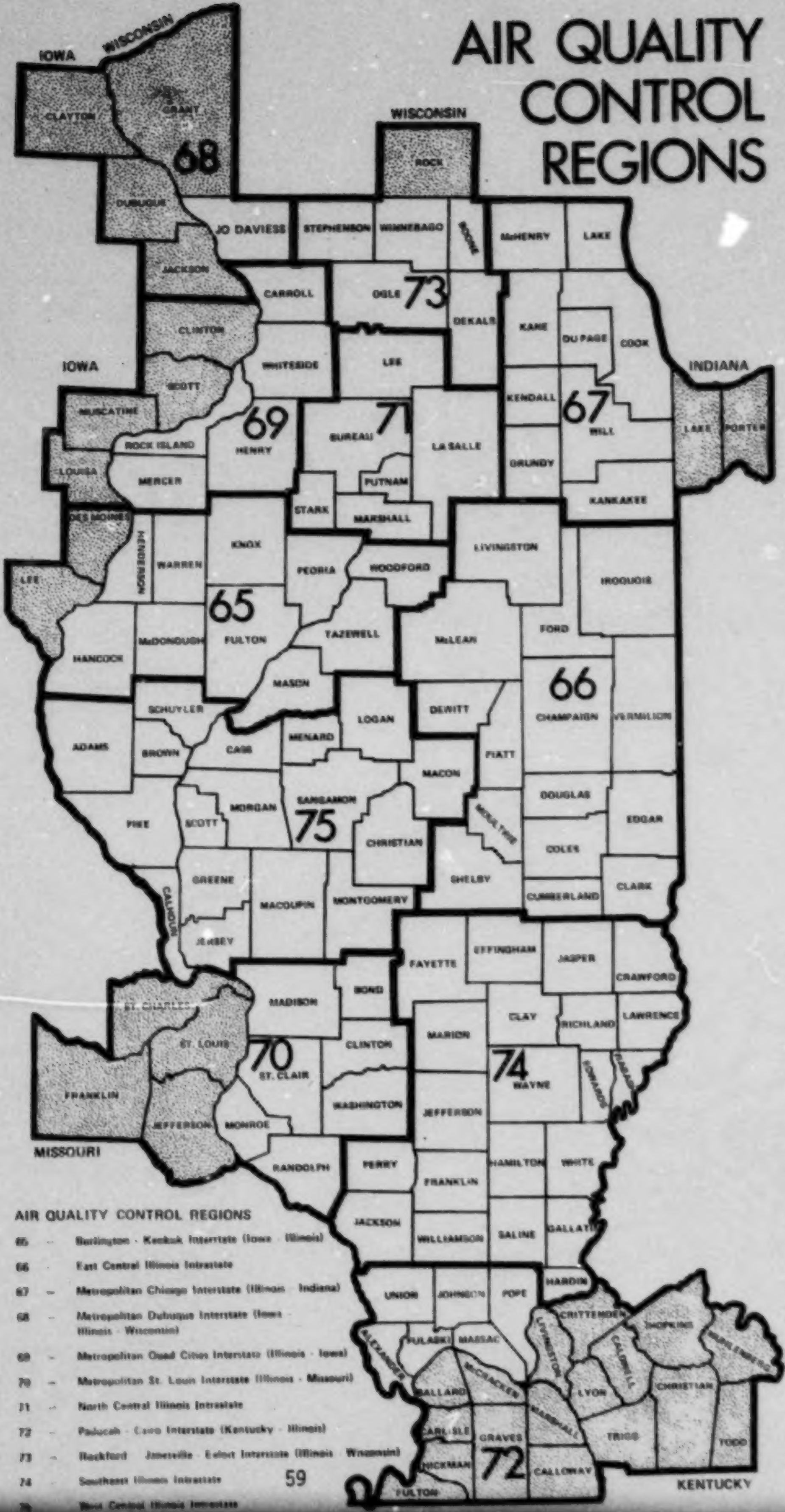
| STATION | ADDRESS | CALENDAR QUARTER | VALUE (UG/M$^3$) |
|---|---|---|---|
| 70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.) | | | |
| MADISON COUNTY | | | |
| Granite City* | 15th & Madison | 1st | 2.07 |
| | | 3rd | 1.77 |
| | | 4th | 7.27 |
| Granite City* | 20th & Adams | 2nd | 1.58 |

*This station is in violation of the Quarterly Primary Standard.

# 5.0

# 1981 REGIONAL AIR QUALITY DATA

# AIR QUALITY CONTROL REGIONS

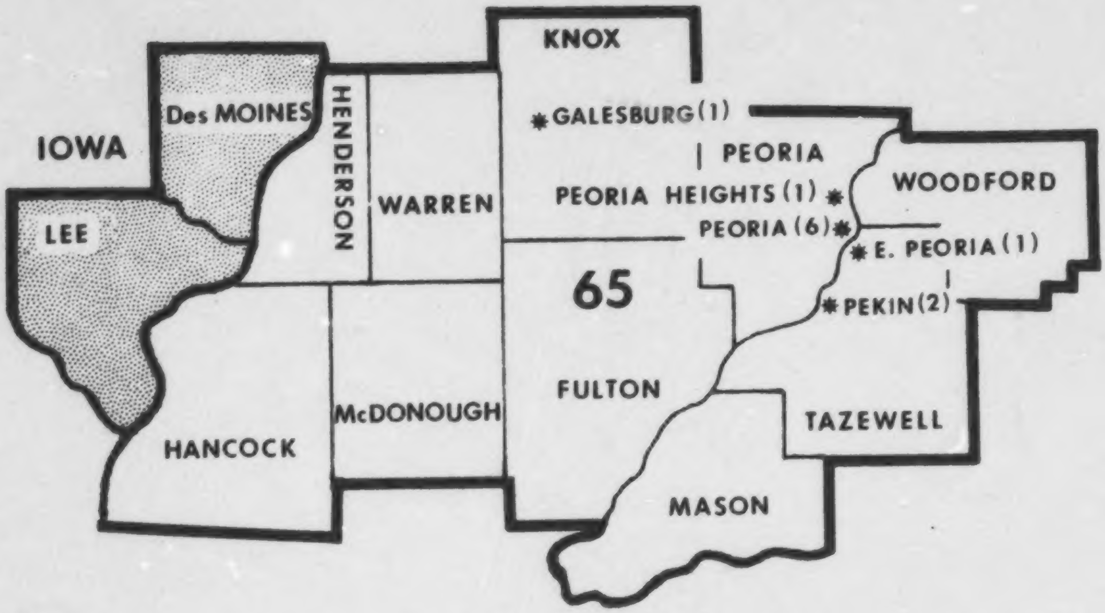

IOWA
WISCONSIN
CLAYTON
GRANT
68
DUBUQUE
JACKSON
CLINTON
SCOTT
MUSCATINE
LOUISA
DES MOINES
LEE
WISCONSIN
ROCK
JO DAVIESS
STEPHENSON
WINNEBAGO
BOONE
McHENRY
LAKE
CARROLL
OGLE
73
DEKALB
KANE
DU PAGE
COOK
WHITESIDE
LEE
KENDALL
67
WILL
INDIANA
LAKE
PORTER
ROCK ISLAND
69
HENRY
MERCER
BUREAU
71
LA SALLE
PUTNAM
GRUNDY
KANKAKEE
STARK
MARSHALL
HENDERSON
WARREN
KNOX
PEORIA
WOODFORD
LIVINGSTON
IROQUOIS
65
FULTON
TAZEWELL
McLEAN
FORD
HANCOCK
McDONOUGH
MASON
66
DEWITT
CHAMPAIGN
VERMILION
SCHUYLER
ADAMS
BROWN
CASS
MENARD
LOGAN
PIATT
MACON
DOUGLAS
EDGAR
PIKE
SCOTT
MORGAN
SANGAMON
75
CHRISTIAN
MOULTRIE
COLES
SHELBY
CUMBERLAND
CLARK
CALHOUN
GREENE
MACOUPIN
MONTGOMERY
JERSEY
FAYETTE
EFFINGHAM
JASPER
CRAWFORD
MADISON
BOND
CLAY
RICHLAND
LAWRENCE
ST. CHARLES
ST. LOUIS
FRANKLIN
70
ST. CLAIR
CLINTON
MARION
74
WAYNE
EDWARDS
WABASH
JEFFERSON
MONROE
WASHINGTON
JEFFERSON
MISSOURI
RANDOLPH
PERRY
FRANKLIN
HAMILTON
WHITE
JACKSON
WILLIAMSON
SALINE
GALLATIN
HARDIN
UNION
JOHNSON
POPE
CRITTENDEN
HOPKINS
ALEXANDER
PULASKI
MASSAC
LIVINGSTON
CALDWELL
MUHLENBERG
BALLARD
McCRACKEN
LYON
CHRISTIAN
CARLISLE
GRAVES
MARSHALL
TRIGG
TODD
HICKMAN
72
CALLOWAY
FULTON
KENTUCKY

AIR QUALITY CONTROL REGIONS

65 – Burlington - Keokuk Interstate (Iowa - Illinois)
66 – East Central Illinois Intrastate
67 – Metropolitan Chicago Interstate (Illinois - Indiana)
68 – Metropolitan Dubuque Interstate (Iowa - Illinois - Wisconsin)
69 – Metropolitan Quad Cities Interstate (Illinois - Iowa)
70 – Metropolitan St. Louis Interstate (Illinois - Missouri)
71 – North Central Illinois Intrastate
72 – Paducah - Cairo Interstate (Kentucky - Illinois)
73 – Rockford - Janesville - Beloit Interstate (Illinois - Wisconsin)
74 – Southeast Illinois Intrastate
75 – West Central Illinois Intrastate

65
66
67
68
69
70
71
72
73
74
75

# AIR QUALITY CONTROL REGION 65
# BURLINGTON - KEOKUK INTERSTATE
# (IOWA - ILLINOIS)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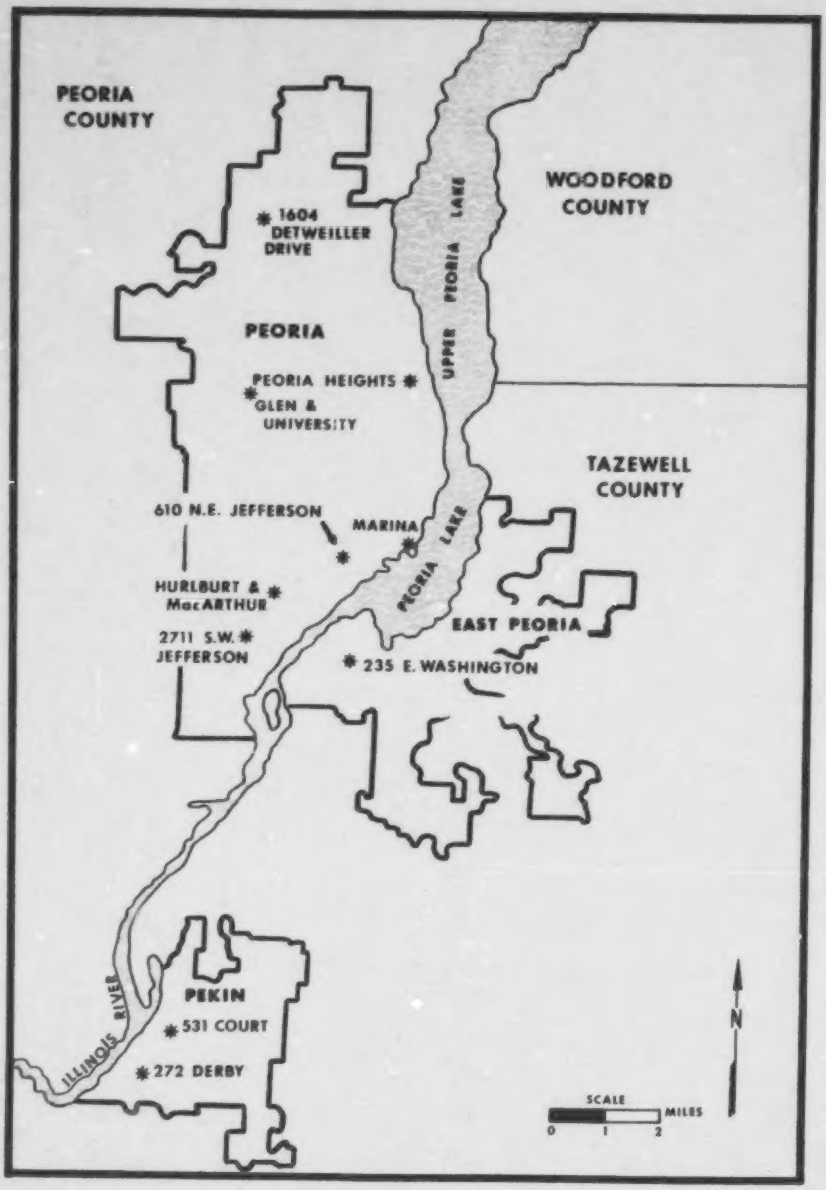
IOWA
Des MOINES
HENDERSON
WARREN
GALESBURG (1)
PEORIA
PEORIA HEIGHTS (1)
WOODFORD
LEE
PEORIA (6)
E. PEORIA (1)
65
PEKIN (2)
FULTON
TAZEWELL
McDONOUGH
HANCOCK
MASON

Data for the Iowa portion of this control region can be obtained from:
Iowa Department of Environmental Quality,
Henry A. Wallace Building
900 E. Grand Avenue
Des Moines, Iowa 50319
(515) 281-8692

(The number of sampling sites in each city is shown in parenthesis following the city name.)

## PEORIA AREA


PEORIA COUNTY
WOODFORD COUNTY
1604 DETWEILLER DRIVE
PEORIA
UPPER PEORIA LAKE
PEORIA HEIGHTS
GLEN & UNIVERSITY
TAZEWELL COUNTY
610 N.E. JEFFERSON
MARINA
PEORIA LAKE
HURLBURT & MacARTHUR
2711 S.W. JEFFERSON
EAST PEORIA
235 E. WASHINGTON
PEKIN
531 COURT
272 DERBY
ILLINOIS RIVER
N
SCALE
MILES
0
1
2

## BURLINGTON-KEOKUK INTERSTATE (IOWA-ILLINOIS)
## AIR QUALITY CONTROL REGION (AQCR) 65

### Total Suspended Particulates

Four of the six sites in the Illinois portion of this AQCR recorded valid annual averages for TSP. All four of these sites were below the primary annual standard of 75 ug/m$^3$ with Peoria - 610 N.E. Jefferson recording the highest annual mean of 70 ug/m$^3$. Two of these sites (Peoria - 610 N.E. Jefferson and East Peoria) exceeded the standard in 1980, but showed decreases of 11 ug/m$^3$ and 10 ug/m$^3$ respectively, in 1981. The Peoria - 1604 Detweller site was the only site below the secondary annual standard of 60 ug/m$^3$ with an annual mean of 59 ug/m$^3$. None of the sites in this AQCR exceeded the 24-hour primary standard of 260 ug/m$^3$.

### Lead

None of the sites exceeded the primary quarterly lead standard of 1.5 ug/m$^3$. The highest quarterly average was 0.53 ug/m$^3$ recorded in Peoria at 2711 S.W. Jefferson.

### Sulfur Dioxide

All three sites in the Illinois portion of this AQCR had sufficient data for valid annual averages. These sites are well below the primary annual standard of 0.03 ppm. The highest annual average was 0.007 ppm recorded at the Peoria - Marina site. Pekin recorded the highest 3-hour and 24-hour averages with 0.326 ppm and 0.100 ppm, respectively. These values are below the 3-hour secondary standard of 0.5 ppm and the 24-hour primary standard of 0.14 ppm.

### Ozone

Three ozone monitoring sites operated for all or most of the 1981 ozone season (April - October). None of these sites recorded any days with ozone concentrations above 0.12 ppm (Federal standard) with Peoria Heights recording the highest 1-hour average of 0.111 ppm. All three sites recorded more than one hour above 0.08 ppm (State standard) with Peoria Heights recording the most, 36.

### Carbon Monoxide

The only site in the Illinois portion of this AQCR was operated in Peoria. This site recorded one excursion of the 8-hour primary standard of 9 ppm with a level of 9.7 ppm. The highest 1-hour average was 18.4 ppm, significantly below the 1-hour standard of 35 ppm.

### Nitrogen Dioxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

# 1981
# TOTAL SUSPENDED PARTICULATES

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M3 | >260 UG/M3 | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| KNOX COUNTY | | | | | | | | | | |
| Galesburg | 40 E. Simmons | 54 | 0 | 0 | 118 | 116 | 99 | 97 | 61 | 1.4 |
| PEORIA COUNTY | | | | | | | | | | |
| Peoria | 610 N.E. Jefferson | 46 | 1 | 0 | 175 | 114 | 113 | 108 | 70 | 1.4 |
| Peoria | 2711 S.W. Jefferson | 40 | 1 | 0 | 194 | 127 | 126 | 109 | + | |
| Peoria | 1604 Detweiller | 53 | 1 | 0 | 198 | 119 | 93 | 91 | 59 | 1.4 |
| TAZEWELL COUNTY | | | | | | | | | | |
| East Peoria | 235 E. Washington | 44 | 1 | 0 | 165 | 119 | 102 | 100 | 67 | 1.4 |
| Pekin | 531 Court | 52 | 1 | 0 | 218 | 136 | 119 | 109 | + | |

# SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| KNOX COUNTY | | | | | | | | |
| Galesburg | 40 E. Simmons | 73 | 67 | 58 | 63 | 60 | 61 | 61 |
| PEORIA COUNTY | | | | | | | | |
| Peoria | 610 N.E. Jefferson | 91 | 98 | 86 | 102 | 87 | 81 | 70 |
| Peoria | 2711 S.W. Jefferson | 90 | 90 | 88 | 89 | 88 | 80 | + |
| Peoria | 1604 Detweiller | 58 | 66 | 61 | 63 | 62 | 62 | 59 |
| TAZEWELL COUNTY | | | | | | | | |
| East Peoria | 235 E. Washington | 95 | 96 | 88 | 104 | 81 | 77 | 67 |
| Pekin | 531 Court | 77 | 81 | + | 71 | + | 65 | + |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | | HIGHEST SAMPLES (PPM) | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 HR | 24 HR | 3 - HR AVGS >.5 | 24-HR AVGS >.14 | 3-HR. AVG. 1st | 3-HR. AVG. 2nd | 24-HR. AVG. 1st | 24-HR. AVG. 2nd | ARITH. MEAN | STD. GEO. DEVIATION |
| PEORIA COUNTY | | | | | | | | | | | |
| Peoria | Hurlburt & MacArthur | 7984 | | 0 | 0 | .055 | .052 | .035 | .030 | .005 | 2.69 |
| Peoria | Marina | 8376 | | 0 | 0 | .077 | .075 | .035 | .034 | .007 | 2.95 |
| TAZEWELL COUNTY | | | | | | | | | | | |
| Pekin | 272 Derby | 7958 | | 0 | 0 | .326 | .321 | .100 | .031 | .006 | 2.75 |

# SHORT-TERM TRENDS FOR SULFUR DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| PEORIA COUNTY | | | | | | | | |
| Peoria | Hurlburt & MacArthur | .027 | .019 | .020 | .016 | .009 | .007 | .005 |
| Peoria | Marina | - | - | - | - | - | - | .007 |
| TAZEWELL COUNTY | | | | | | | | |
| Pekin | 272 Derby | .016 | .017 | .018 | .016 | .012 | .008 | .006 |

# OZONE
(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST SAMPLES (PPM) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL 1st | ANNUAL 2nd |
| PEORIA COUNTY | | | | | | | | | | | | | |
| Peoria | Hurlburt & MacArthur | 8061 | 11 | 0 | .070 | .087 | .071 | .082 | .106 | .079 | .048 | .106 | .087 |
| Peoria Heights | 504 E. Glen | 8151 | 36 | 0 | .065 | .085 | .088 | .089 | .111 | .090 | .055 | .111 | .091 |
| WARREN COUNTY | | | | | | | | | | | | | |
| Monmouth | Monmouth College | 3863 | 14 | 0 | NS | .078 | .078 | .091 | .088 | .066 | .062 | .091 | .088 |

- Station not in operation during year shown.

# 1981
# CARBON MONOXIDE
(PARTS PER MILLION)

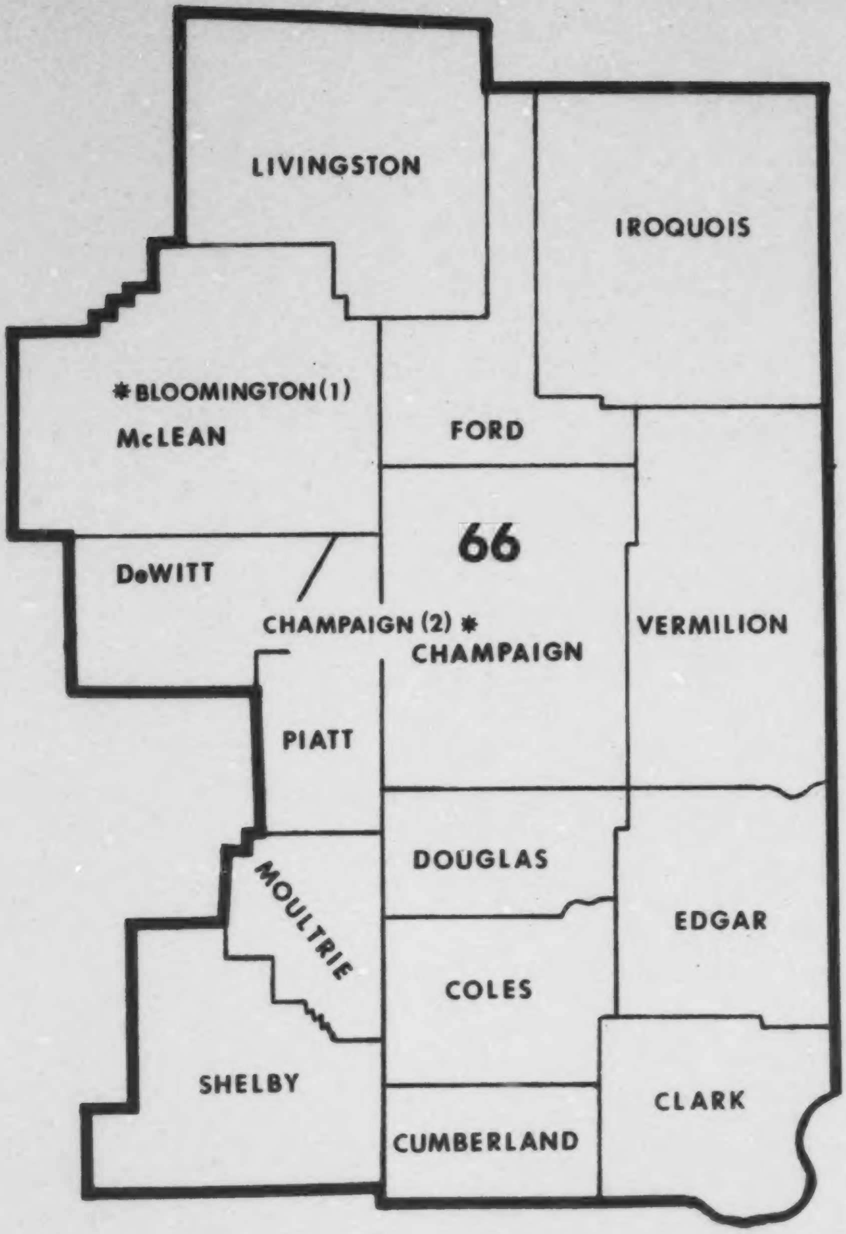
| STATION | ADDRESS | NO OF SAMPLES | NUMBER OF AVERAGES | | HIGHEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 - HR >35 PPM | 8 - HR >9 PPM | 1-HR AVERAGE | | | 8-HR AVERAGE | | |
| | | | | | 1st | 2nd | 3rd | 1st | 2nd | 3rd |
| PEORIA COUNTY | | | | | | | | | | |
| Peoria | Glen & University | 5737 | 0 | 1 | 18.4 | 14.6 | 12.6 | 9.7 | 6.7 | 6.[illegible] |

# LEAD
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m3) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| KNOX COUNTY | | | | | | | |
| Galesburg | 40 E. Simmons | 0 | 0.12 | 0.09 | 0.12 | 0.18 | 0.13 |
| PEORIA COUNTY | | | | | | | |
| Peoria | 610 N.E. Jefferson | 0 | 0.28 | 0.16 | 0.33 | 0.35 | 0.28 |
| Peoria | 2711 S.W. Jefferson | 0 | 0.53 | 0.16 | 0.23 | + | + |
| Peoria | 1604 Detweiller | 0 | 0.10 | 0.13 | 0.12 | 0.14 | 0.12 |
| TAZEWELL COUNTY | | | | | | | |
| East Peoria | 235 E. Washington | 0 | 0.24 | 0.24 | 0.27 | 0.33 | 0.27 |
| Pekin | 531 Court | 0 | 0.20 | 0.12 | 0.17 | 0.25 | 0.19 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

# AIR QUALITY CONTROL REGION 66
# EAST CENTRAL ILLINOIS INTRASTATE


LIVINGSTON
IROQUOIS
*BLOOMINGTON(1)
McLEAN
FORD
66
DeWITT
CHAMPAIGN (2) *
CHAMPAIGN
VERMILION
PIATT
DOUGLAS
MOULTRIE
EDGAR
COLES
SHELBY
CLARK
CUMBERLAND

(The number of sampling sites in each city is shown in parenthesis following the city name.)

# EAST CENTRAL ILLINOIS INTRASTATE
# AIR QUALITY CONTROL REGION (AQCR) 66

## Total Suspended Particulates

Champaign was the only site in this AQCR with a valid annual average. The annual geometric mean was 54 ug/$m^3$, less than the annual secondary standard of 60 ug/$m^3$. Champaign recorded one exceedence of the 24-hour primary standard of 260 ug/$m^3$ with a value of 321 ug/$m^3$. This value occurred on a day that exhibited high TSP state wide due to high winds and dry spring conditions. The next highest value was 136 ug/$m^3$ less than the 24-hour secondary standard of 150 ug/$m_3$.

## Lead

There were no violations of the quarterly lead standard of 1.5 ug/$m^3$. The highest quarterly average was 0.23 ug/$m^3$ in Bloomington.

## Ozone

The monitoring site in Champaign did not record any days with concentrations above the Federal standard of 0.12 ppm. This site recorded 17 hours with ozone concentrations above the State standard of 0.08 ppm with the highest hourly concentration being 0.088 ppm.

## Sulfur Dioxide, Nitrogen Dioxide, Carbon Monoxide, Non-Methane Hydrocarbons

Date for these pollutants not collected in this AQCR.

# 1981
# TOTAL SUSPENDED PARTICULATES

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M3 | >260 UG/M3 | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| CHAMPAIGN COUNTY | | | | | | | | | | |
| Champaign | 2125 S. First | 47 | 1 | 1 | 321 | 136 | 99 | 97 | 54 | 1.6 |
| MC LEAN COUNTY | | | | | | | | | | |
| Bloomington | 301 W. Washington | 30 | 0 | 0 | 105 | 97 | 92 | 91 | + | |

# SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M³) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| CHAMPAIGN COUNTY | | | | | | | | |
| Champaign | 2125 S. First | 46 | 56 | 56 | 51 | 52 | 59 | 54 |
| MC LEAN COUNTY | | | | | | | | |
| Bloomington | 301 W. Washington | 64 | 75 | 72 | + | + | + | + |

# OZONE

(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST SAMPLES (PPM) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL | |
| | | | | | | | | | | | | 1st | 2nd |
| CHAMPAIGN COUNTY | | | | | | | | | | | | | |
| Champaign | 606 E. Grove | 7989 | 17 | 0 | .082 | .085 | .086 | .088 | .079 | .084 | .062 | .088 | .086 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

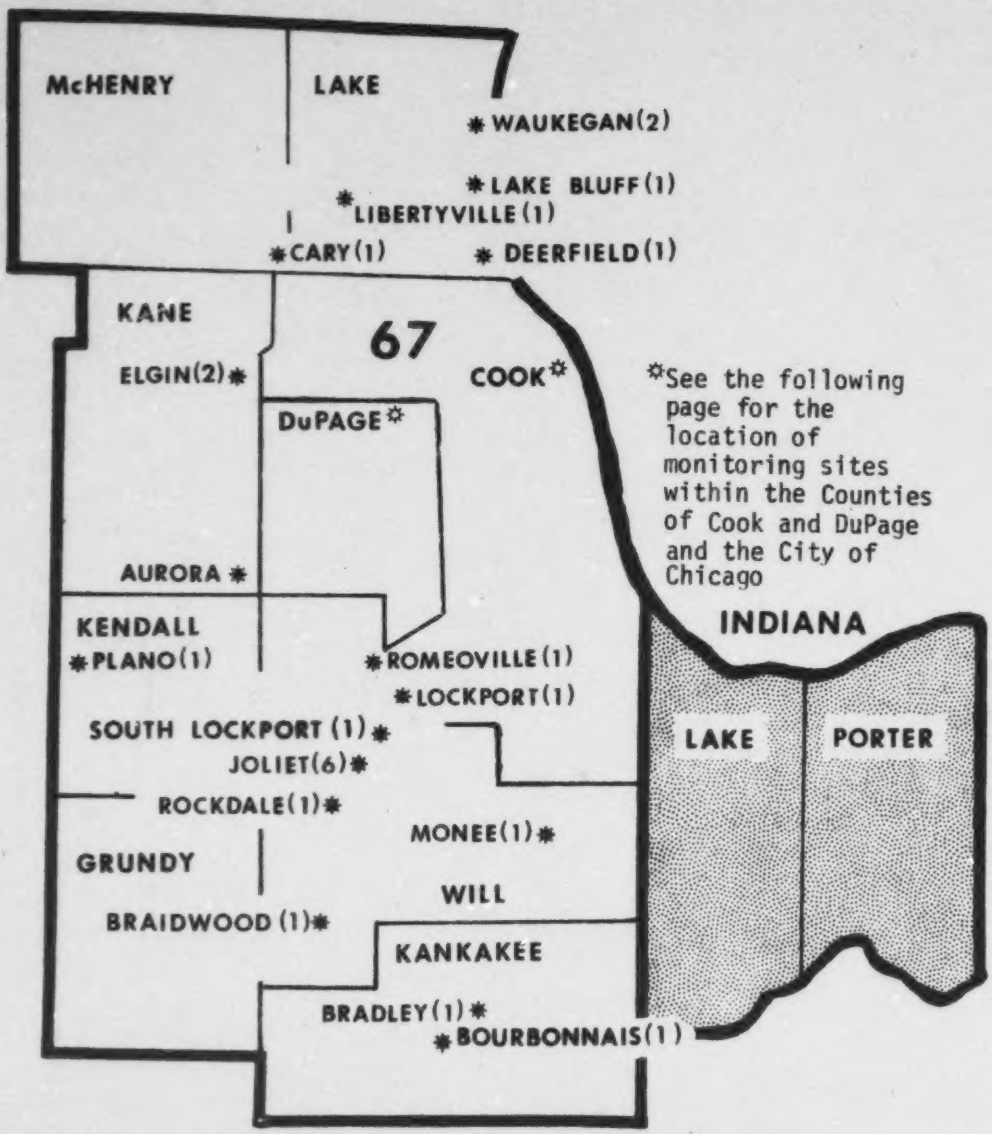
# 1981
# LEAD

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m3 | QUARTERLY AVERAGES (ug/m3) | | | | ANNUAL MEAN (ug/m3) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| CHAMPAIGN COUNTY | | | | | | | |
| Champaign | 2125 S. First | 0 | 0.08 | 0.07 | 0.09 | + | 0.08 |
| MC LEAN COUNTY | | | | | | | |
| Bloomington | 301 W. Washington | 0 | + | 0.14 | + | 0.23 | + |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

# AIR QUALITY CONTROL REGION 67
# METRO CHICAGO INTERSTATE
# (ILLINOIS - INDIANA)

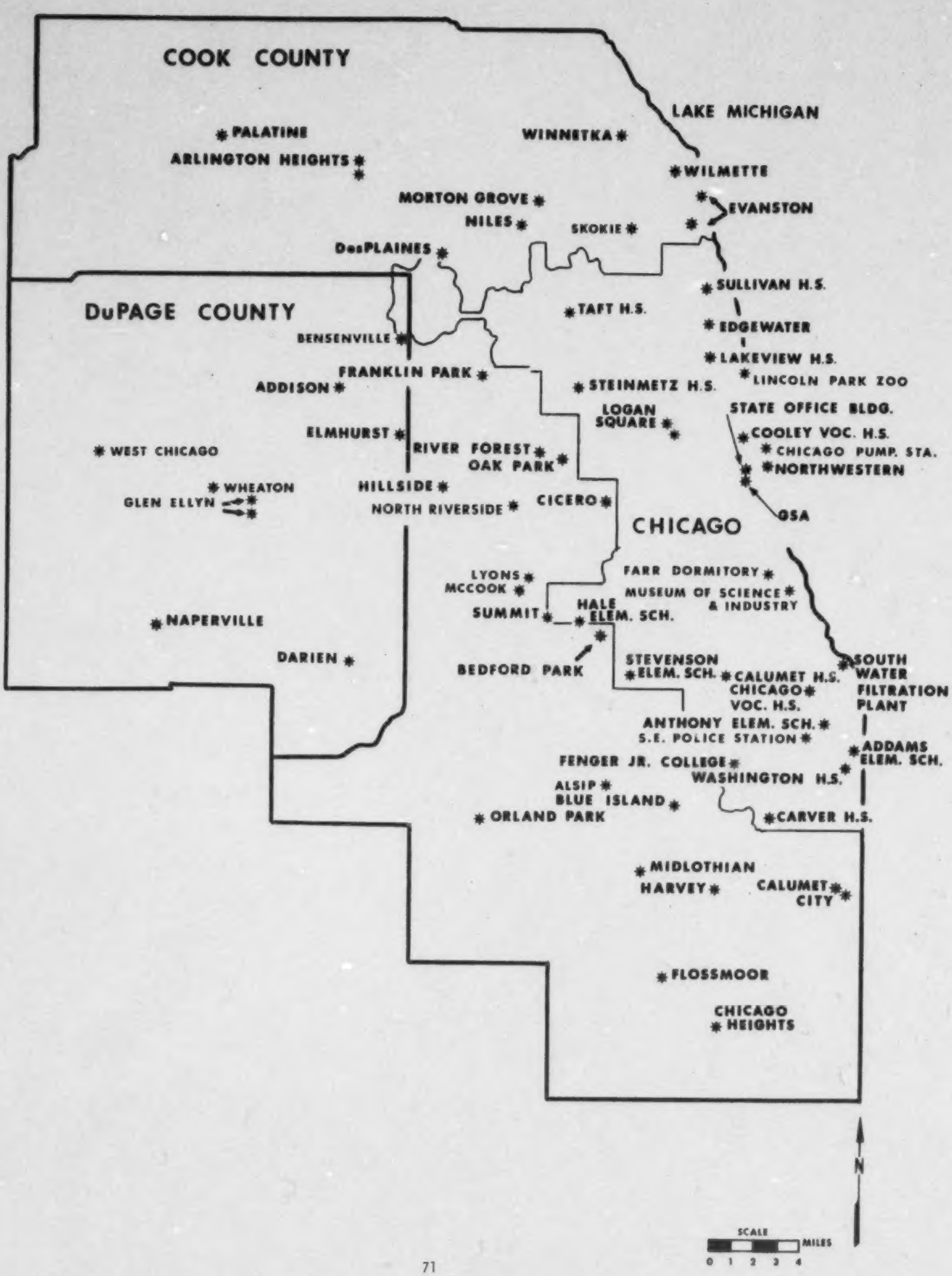

McHENRY
LAKE
✱WAUKEGAN(2)
✱LAKE BLUFF(1)
✱LIBERTYVILLE(1)
✱CARY(1)
✱DEERFIELD(1)
KANE
67
COOK✲
ELGIN(2)✱
DuPAGE✲
AURORA✱
KENDALL
✱PLANO(1)
✱ROMEOVILLE(1)
✱LOCKPORT(1)
SOUTH LOCKPORT (1)✱
JOLIET(6)✱
ROCKDALE(1)✱
MONEE(1)✱
GRUNDY
WILL
BRAIDWOOD (1)✱
KANKAKEE
BRADLEY(1)✱
✱BOURBONNAIS(1)
INDIANA
LAKE
PORTER

✲See the following page for the location of monitoring sites within the Counties of Cook and DuPage and the City of Chicago

Data for the Indiana portion of this control region can be obtained from:
Indiana State Board of Health
Air Pollution Control Division
1330 West Michigan Street
Indianapolis, Indiana 46206
(317) 633-0644

(The number of sampling sites in each city is shown in parenthesis following the city name.)

# COOK and DuPAGE COUNTIES
# INCLUDING CHICAGO


COOK COUNTY
LAKE MICHIGAN
PALATINE
ARLINGTON HEIGHTS
WINNETKA
WILMETTE
MORTON GROVE
NILES
SKOKIE
EVANSTON
DesPLAINES
DuPAGE COUNTY
SULLIVAN H.S.
TAFT H.S.
EDGEWATER
BENSENVILLE
LAKEVIEW H.S.
FRANKLIN PARK
LINCOLN PARK ZOO
ADDISON
STEINMETZ H.S.
STATE OFFICE BLDG.
LOGAN SQUARE
COOLEY VOC. H.S.
ELMHURST
CHICAGO PUMP. STA.
RIVER FOREST
WEST CHICAGO
OAK PARK
NORTHWESTERN
WHEATON
HILLSIDE
GLEN ELLYN
CICERO
NORTH RIVERSIDE
GSA
CHICAGO
LYONS
FARR DORMITORY
MCCOOK
MUSEUM OF SCIENCE & INDUSTRY
SUMMIT
HALE ELEM. SCH.
NAPERVILLE
DARIEN
BEDFORD PARK
STEVENSON ELEM. SCH.
CALUMET H.S.
SOUTH WATER FILTRATION PLANT
CHICAGO VOC. H.S.
ANTHONY ELEM. SCH.
S.E. POLICE STATION
ADDAMS ELEM. SCH.
FENGER JR. COLLEGE
WASHINGTON H.S.
ALSIP
BLUE ISLAND
ORLAND PARK
CARVER H.S.
MIDLOTHIAN
HARVEY
CALUMET CITY
FLOSSMOOR
CHICAGO HEIGHTS
N
SCALE
MILES
0 1 2 3 4

# METROPOLITAN CHICAGO INTERSTATE (ILLINOIS-INDIANA)
# AIR QUALITY CONTROL REGION (AQCR) 67

## Total Suspended Particulates

In the Illinois portion of AQCR 67 a total of 58 sites had sufficient data for a valid annual average. Annual geometric means in excess of the annual primary standard of 75 ug/m$^3$ were recorded at nine (16%) sites in 1981. This is a significant drop from the 27% of the sites above the standard in 1980 and 30% in 1979. Washington High School in Chicago again recorded the highest annual average in the Illinois portion of AQCR 67 with 111 ug/m$^3$. This value is lower than the 119 ug/m$^3$ in 1980 and the 129 ug/m$^3$ recorded at this site in 1979 and is the lowest maximum average ever recorded in Chicago. Blue Island recorded the highest annual average outside of the City of Chicago with an annual average of 84 ug/m$^3$.

In Chicago 11 of 12 sites recorded lower annual averages in 1981 than in 1980. In the remainder of the Illinois portion of this AQCR, 33 of 41 sites recorded lower annual averages in 1981 than 1980. Figure 2 is a map of the Chicago area listing the annual geometric means.

Four sites each recorded one value in excess of the primary 24-hour standard of 260 ug/m$^3$. Blue Island recorded the highest 24-hour sample with a value of 350 ug/m$^3$. Of the 58 sites, 30 recorded one or more samples above the 24-hour secondary standard of 150 ug/m$^3$.

## Lead

No quarterly averages were recorded that exceeded the quarterly standard of 1.5 ug/m$^3$. The highest quarterly average was 0.89 ug/m$^3$ recorded in Chicago at Washington High School. The highest quarterly average recorded outside of the City of Chicago was 0.84 ug/m$^3$ recorded at Elgin.

## Sulfur Dioxide

A total of 11 sites had sufficient data collection for valid annual averages. All of the sites were well below the primary annual standard at 0.03 ppm with the highest annual average of 0.011 ppm at both Calument City and the State Office Building in Chicago. Nearly all sites in the Illinois portion of this AQCR recorded lower annual averages in 1981 than in 1980. Figure 3 is a map of the Chicago area listing the annual means.

No excursions of the 24-hour primary standard of 0.14 ppm or the 3-hour secondary standard of 0.5 ppm were recorded in the Illinois portion of this AQCR in 1981. The highest 24-hour average of 0.101 ppm was recorded at the Southeast Police Station in Chicago and the highest 3-hour average of 0.153 ppm was recorded at Lyons.

## Ozone

In the Illinois portion of this AQCR a total of 20 sites monitored for ozone in 1981. Of these sites 13 recorded at least one day with concentrations above 0.12 ppm and seven of the 13 recorded more than one day above 0.12 ppm. The most days above 0.12 ppm were recorded at Waukegan with four and the site with the most hours above 0.08 ppm was Evanston with 83. The highest 1-hour concentration in 1981 was 0.176 ppm recorded at Taft H. S. in Chicago. In general the peak concentrations and the number of days above 0.12 ppm in 1981 were similar to those in 1980. The number of hours above 0.08 ppm in 1981 was well below the number recorded in 1980 in Cook County outside of Chicago. In the City of Chicago and the counties in the AQCR other than Cook, the number of hours above 0.08 ppm in 1981 was very similar to the number recorded in 1980.

## Nitrogen Dioxide

A total of 21 sites monitored for $NO_2$ in the Illinois portion of AQCR 67 in 1981. The decrease in annual averages that began in 1980 continues in 1981 with none of the sites exceeding the primary annual standard of 0.05 ppm. This compares with seven sites above in 1980 and 19 sites above the standard in 1979. The highest annual average was recorded in Cicero with a value of 0.050 ppm. The highest 1-hour average was 0.274 ppm at Lincoln Park Zoo in Chicago and the highest 24-hour average was 0.109 ppm at Morton Grove. Figure 4 is a map of the Chicago area listing the annual means.

## Carbon Monoxide

Eight sites monitored CO for all or part of 1981 in the Illinois portion of AQCR 67. Three sites recorded excursions of the 8-hour primary standard of 9 ppm; the State Office Building with three and Logan Square with two, both in Chicago, and Joliet - 71 North Ottawa with one. The three excursions at the State Office Building are significantly less than the number recorded in past years; 29 excursions in 1980, 59 in 1979 and 84 in 1978. The highest 8-hour average of 10.6 ppm and the highest 1-hour average of 22.5 ppm, well below the 1-hour primary standard of 35 ppm, were also recorded at the State Office Building.

## Non-Methane Hydrocarbons

Non-Methane hydrocarbon data was collected at two sites in the Illinois portion of AQCR 67 for part of 1981. The sites in Chicago, at Northwestern University and the State Office Building, were operated from July to October. The highest 3-hour (6 to 9 am) averages for each month at each site were in excess of the primary standard of 0.24 ppm. They ranged from a high 3-hour average of 2.0 ppm at the State Office Building in September to a low of 0.3 ppm at Northwestern University in October. For Northwestern University 47 of 62 days exceeded the standard and at the State Office Building 58 of 64 days exceeded the standard.

# COOK and DuPAGE COUNTIES including CHICAGO

TOTAL SUSPENDED PARTICULATES
ANNUAL GEOMETRIC MEAN
(MICROGRAMS PER CUBIC METER)

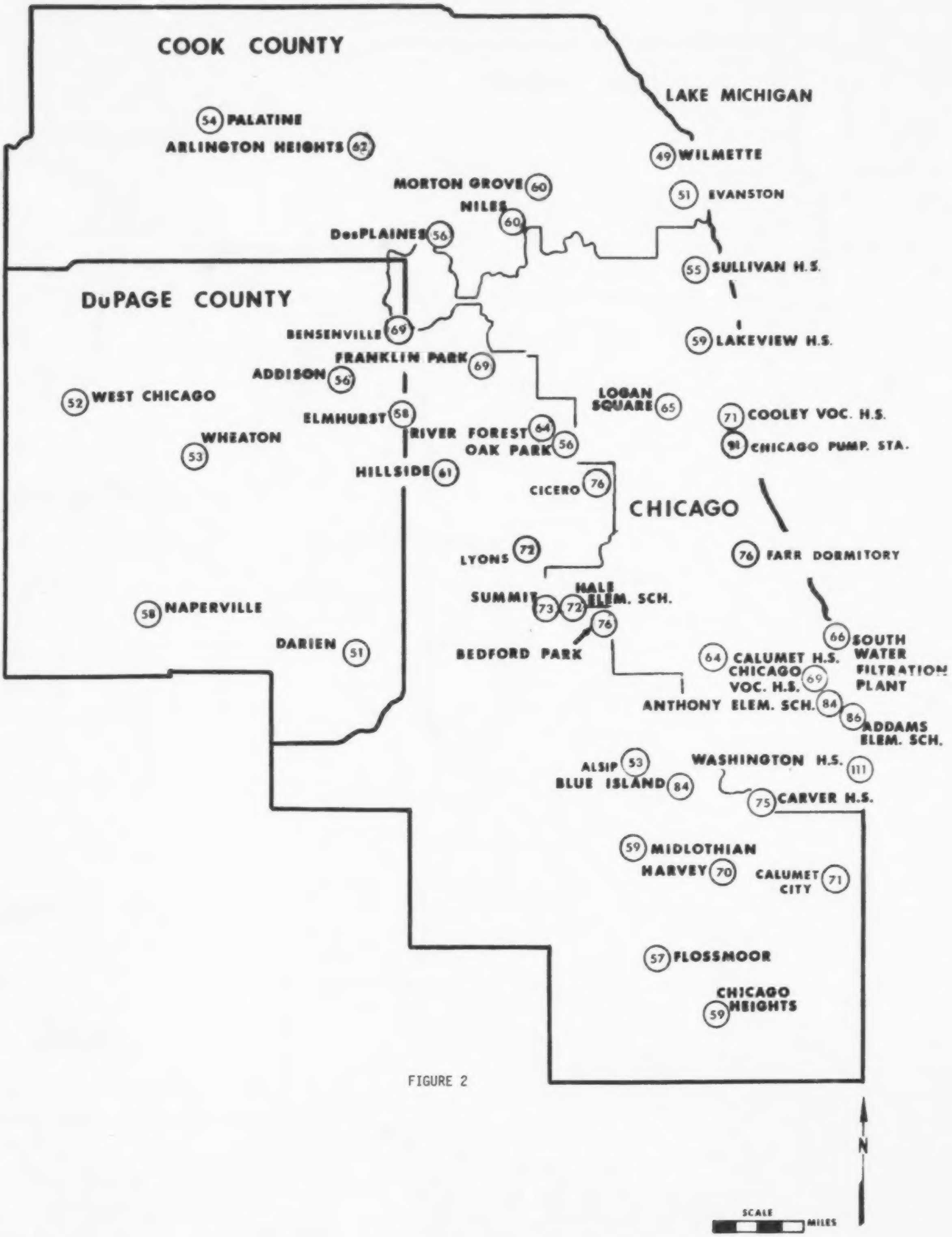
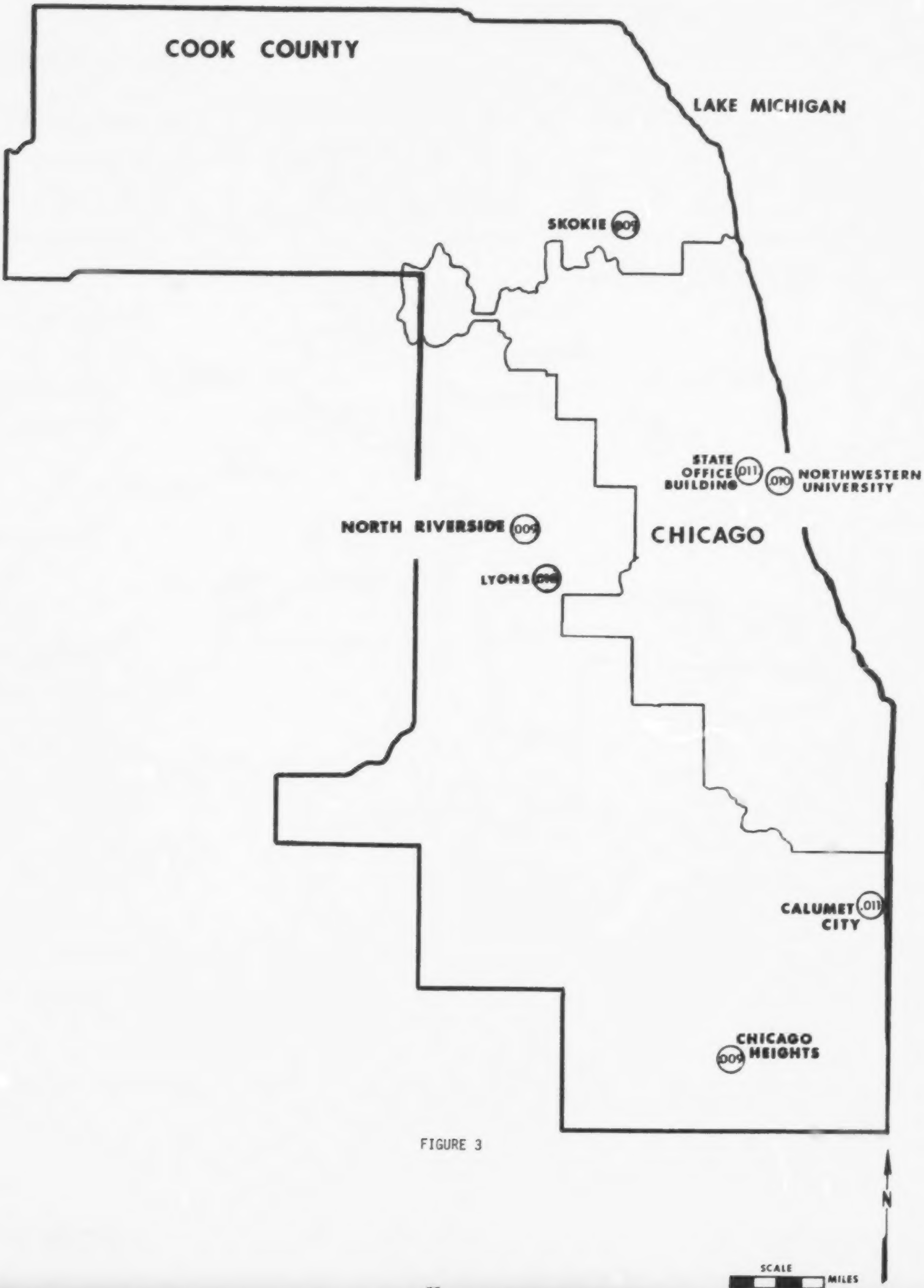

COOK COUNTY
DuPAGE COUNTY
LAKE MICHIGAN
CHICAGO
54 PALATINE
ARLINGTON HEIGHTS 62
49 WILMETTE
MORTON GROVE 60
NILES 60
51 EVANSTON
DesPLAINES 56
55 SULLIVAN H.S.
59 LAKEVIEW H.S.
BENSENVILLE 69
FRANKLIN PARK 69
ADDISON 56
52 WEST CHICAGO
ELMHURST 58
LOGAN SQUARE 65
71 COOLEY VOC. H.S.
91 CHICAGO PUMP. STA.
WHEATON 53
RIVER FOREST 64
OAK PARK 56
HILLSIDE 61
CICERO 76
LYONS 72
76 FARR DORMITORY
SUMMIT 73
HALE ELEM. SCH. 72
76
BEDFORD PARK
58 NAPERVILLE
DARIEN 51
66 SOUTH WATER FILTRATION PLANT
64 CALUMET H.S.
CHICAGO VOC. H.S. 69
ANTHONY ELEM. SCH. 84
86 ADDAMS ELEM. SCH.
ALSIP 53
BLUE ISLAND 84
WASHINGTON H.S. 111
75 CARVER H.S.
59 MIDLOTHIAN
HARVEY 70
CALUMET CITY 71
57 FLOSSMOOR
CHICAGO HEIGHTS 59
N
SCALE
MILES
0 1 2 3 4

FIGURE 2



COOK COUNTY
including CHICAGO
SULFUR DIOXIDE
ANNUAL ARITHMETIC MEAN
(PARTS PER MILLION)

COOK COUNTY
LAKE MICHIGAN
SKOKIE .009
STATE OFFICE BUILDING .011
.010 NORTHWESTERN UNIVERSITY
NORTH RIVERSIDE .009
CHICAGO
LYONS
CALUMET CITY .011
CHICAGO HEIGHTS .009
N
SCALE
MILES
0 1 2 3 4

FIGURE 3

## COOK COUNTY
## including CHICAGO
## NITROGEN DIOXIDE
## ANNUAL ARITHMETIC MEAN
(PARTS PER MILLION)

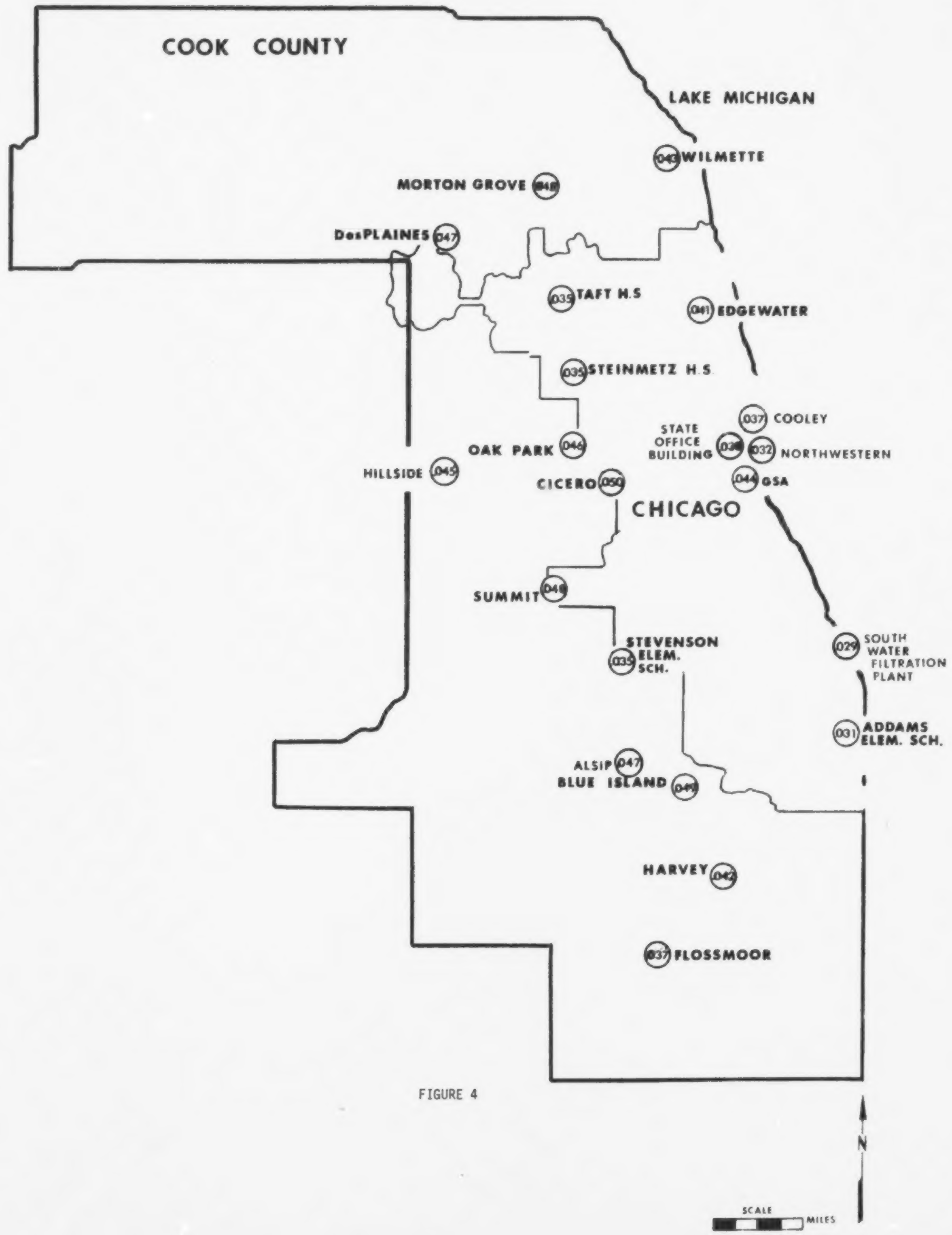

COOK COUNTY
LAKE MICHIGAN
043 WILMETTE
MORTON GROVE 048
DesPLAINES 047
035 TAFT H.S
041 EDGEWATER
035 STEINMETZ H.S.
037 COOLEY
STATE OFFICE BUILDING 038
032 NORTHWESTERN
OAK PARK 046
HILLSIDE 045
CICERO 050
044 GSA
CHICAGO
SUMMIT 048
035 STEVENSON ELEM. SCH.
029 SOUTH WATER FILTRATION PLANT
031 ADDAMS ELEM. SCH.
ALSIP 047
BLUE ISLAND 049
HARVEY 042
037 FLOSSMOOR
N
SCALE
MILES
0 1 2 3 4

FIGURE 4

# 1981
# TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M3 | >260 UG/M3 | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| COOK COUNTY | | | | | | | | | | |
| Alsip | 4500 W. 123rd St. | 53 | 0 | 0 | 107 | 104 | 92 | 91 | 53 | 1.4 |
| Arlington Heights | 33 S. Arlington Hts. Rd. | 56 | 0 | 0 | 139 | 113 | 113 | 112 | 62 | 1.5 |
| Bedford Park | 6535 S. Central | 54 | 1 | 0 | 154 | 150 | 146 | 143 | 76 | 1.5 |
| Blue Island | 12700 Sacramento | 50 | 4 | 1 | 350 | 168 | 168 | 152 | 84 | 1.5 |
| Calumet City | 755 Pulaski Rd. | 60 | 3 | 0 | 181 | 171 | 154 | 147 | 71 | 1.5 |
| Chicago Heights | Dixie Hwy. & 10th St. | 58 | 1 | 0 | 205 | 141 | 135 | 120 | 59 | 1.5 |
| Cicero | 15th St. & 50th Ave. | 55 | 0 | 0 | 133 | 132 | 130 | 129 | 76 | 1.4 |
| Des Plaines | 1755 S. Wolf Rd. | 58 | 0 | 0 | 119 | 111 | 103 | 102 | 56 | 1.5 |
| Evanston | 1454 Elmwood | 57 | 0 | 0 | 119 | 115 | 108 | 106 | 51 | 1.7 |
| Flossmoor | 999 Kedzie Ave. | 52 | 0 | 0 | 135 | 126 | 122 | 104 | 57 | 1.5 |
| Franklin Park | 3400 N. Rose St. | 56 | 3 | 0 | 175 | 169 | 165 | 150 | 69 | 1.6 |
| Harvey | 157th & Lexington | 58 | 1 | 0 | 165 | 149 | 139 | 127 | 70 | 1.5 |
| Hillside | Wolf Rd. & Harrison | 57 | 0 | 0 | 135 | 133 | 116 | 114 | 61 | 1.5 |
| Lyons | 4043 Joliet Ave. | 56 | 3 | 0 | 166 | 161 | 159 | 142 | 72 | 1.6 |
| McCook | 50th St. & Glencoe | 17 | 1 | 0 | 154 | 119 | 93 | 88 | + | |
| Midlothian | 15202 Crawford Ave. | 57 | 1 | 0 | 208 | 130 | 119 | 112 | 59 | 1.5 |
| Morton Grove | 9111 Waukegan Rd. | 55 | 0 | 0 | 125 | 124 | 123 | 104 | 60 | 1.4 |
| Niles | 8955 Greenwood Ave. | 55 | 0 | 0 | 132 | 119 | 117 | 105 | 60 | 1.5 |
| Oak Park | 834 Lake St. | 57 | 0 | 0 | 135 | 112 | 110 | 101 | 56 | 1.5 |
| Orland Park | 133rd & LaGrange Rd. | 32 | 0 | 0 | 122 | 117 | 111 | 100 | + | |
| Palatine | 1000 Quentin Rd. | 55 | 3 | 1 | 265 | 185 | 175 | 119 | 54 | 1.7 |
| River Forest | Lathrop & Oak | 59 | 1 | 0 | 224 | 136 | 127 | 118 | 64 | 1.5 |
| Summit | 60th & 74th Ave. | 57 | 0 | 0 | 129 | 124 | 123 | 119 | 73 | 1.4 |
| Wilmette | 9th St. & Central Ave. | 55 | 0 | 0 | 120 | 114 | 109 | 108 | 49 | 1.6 |
| Winnetka | 1112 Willow Rd. | 30 | 0 | 0 | 124 | 98 | 76 | 70 | + | |
| Chicago: | | | | | | | | | | |
| Addams Elem. Sch. | 10810 S. Ave. "H" | 60 | 3 | 0 | 185 | 177 | 169 | 147 | 86 | 1.5 |
| Anthony Elem. Sch. | 9800 S. Torrence | 50 | 5 | 0 | 177 | 175 | 168 | 167 | 84 | 1.6 |
| Calumet H.S. | 8131 S. May St. | 58 | 0 | 0 | 139 | 124 | 122 | 117 | 64 | 1.5 |
| Carver H.S. | 801 E. 133rd Pl. | 54 | 3 | 0 | 166 | 164 | 154 | 145 | 75 | 1.5 |
| Chicago Ave. Pump. Sta. | 805 N. Michigan Ave. | 55 | 6 | 0 | 168 | 163 | 161 | 155 | 91 | 1.5 |
| Chicago Vocational H.S. | 2100 E. 87th St. | 58 | 2 | 1 | 311 | 151 | 136 | 133 | 69 | 1.6 |
| Cooley Vocational H.S. | 1450 Larrabee | 60 | 3 | 0 | 185 | 168 | 161 | 139 | 71 | 1.6 |
| Farr Dormitory | 3300 S. Michigan Ave. | 51 | 1 | 0 | 162 | 150 | 143 | 137 | 76 | 1.5 |
| Fenger Jr. College | 11220 S. Wallace | 45 | 0 | 0 | 131 | 125 | 123 | 118 | + | |
| Hale Elem. Sch. | 6140 S. Melvina | 58 | 0 | 0 | 142 | 139 | 132 | 132 | 72 | 1.5 |
| Lakeview H.S. | 4015 N. Ashland | 56 | 1 | 0 | 154 | 137 | 136 | 136 | 59 | 1.7 |
| Logan Square | 2940 W. Cortland | 60 | 0 | 0 | 141 | 136 | 134 | 121 | 65 | 1.5 |
| South Water Filt. Plnt. | 3300 E. Cheltenham Pl. | 60 | 3 | 0 | 195 | 168 | 159 | 148 | 66 | 1.7 |
| Sullivan H.S. | 6631 N. Bosworth Ave. | 59 | 0 | 0 | 142 | 124 | 121 | 116 | 55 | 1.6 |
| Washington H.S. | 3500 E. 114th St. | 60 | 15 | 0 | 254 | 229 | 224 | 204 | 111 | 1.5 |
| DU PAGE COUNTY | | | | | | | | | | |
| Addison | 130 W. Army Trail Rd. | 60 | 0 | 0 | 125 | 114 | 102 | 99 | 56 | 1.5 |
| Bensenville | Main & York | 61 | 0 | 0 | 145 | 142 | 138 | 136 | 69 | 1.5 |
| Darien | 1410 75th St. | 54 | 0 | 0 | 111 | 97 | 96 | 90 | 51 | 1.5 |
| Elmhurst | 118 Schiller | 54 | 0 | 0 | 137 | 125 | 122 | 106 | 58 | 1.5 |
| Glen Ellyn | 494 Pennsylvania St. | 68 | 1 | 0 | 152 | 104 | 102 | 99 | 47 | 1.6 |
| Naperville | 175 Jackson St. | 59 | 0 | 0 | 133 | 126 | 119 | 109 | 58 | 1.5 |
| West Chicago | 128 W. McConnell Ave. | 53 | 0 | 0 | 145 | 141 | 127 | 119 | 52 | 1.6 |
| Wheaton | 201 Reber St. | 58 | 1 | 0 | 153 | 117 | 105 | 95 | 53 | 1.5 |
| KANE COUNTY | | | | | | | | | | |
| Aurora | 770 N. Michels | 51 | 0 | 0 | 126 | 125 | 103 | 97 | 52 | 1.5 |
| Elgin | 150 Dexter | 52 | 1 | 0 | 186 | 126 | 105 | 94 | 55 | 1.6 |
| KANKAKEE COUNTY | | | | | | | | | | |
| Bradley | 610 E. Liberty | 49 | 3 | 1 | 338 | 229 | 190 | 148 | 76 | 1.7 |

**+ Did not meet minimum statistical selection criteria (See Section 4.1).**

# 1981
# TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M$^3$ | >260 UG/M$^3$ | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| LAKE COUNTY | | | | | | | | | | |
| Lake Bluff | 121 E. Sheridan Pl. | 54 | 0 | 0 | 116 | 108 | 98 | 90 | 39 | 1.7 |
| Waukegan | 106 Utica | 39 | 0 | 0 | 116 | 113 | 110 | 97 | + | |
| Waukegan | Golf & Jackson | 52 | 0 | 0 | 97 | 89 | 76 | 76 | 42 | 1.6 |
| MC HENRY COUNTY | | | | | | | | | | |
| Cary | First & Three Oaks Rd. | 58 | 0 | 0 | 112 | 98 | 97 | 95 | 46 | 1.5 |
| WILL COUNTY | | | | | | | | | | |
| Braidwood | Sewage Plant | 51 | 0 | 0 | 135 | 135 | 127 | 119 | 60 | 1.6 |
| Joliet | Midland & Campbell Sts. | 56 | 5 | 0 | 177 | 165 | 161 | 158 | 67 | 1.7 |
| Joliet | 1425 N. Broadway | 53 | 4 | 0 | 202 | 161 | 159 | 153 | 69 | 1.7 |
| Joliet | 1216 Houbolt St. | 50 | 1 | 0 | 152 | 113 | 104 | 99 | 55 | 1.5 |
| Joliet | 501 Ella Ave. | 47 | 1 | 0 | 201 | 136 | 120 | 107 | 53 | 1.9 |
| Lockport | 5th & Madison | 56 | 0 | 0 | 112 | 111 | 106 | 105 | 56 | 1.4 |
| Monee | 432 E. Main St. | 40 | 0 | 0 | 140 | 139 | 122 | 107 | + | |
| Rockdale | Volunteer Fire Dept. | 49 | 1 | 0 | 208 | 147 | 143 | 124 | 75 | 1.4 |
| Romeoville | Naperville Rd. | 52 | 0 | 0 | 137 | 119 | 118 | 113 | 49 | 1.8 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| COOK COUNTY | | | | | | | | |
| Alsip | 4500 W. 123rd St. | - | - | - | - | - | 58 | 53 |
| Arlington Heights | 33 S. Arlington Hts. Rd. | 72 | 67 | 62 | 62 | 79 | 69 | 62 |
| Bedford Park | 6535 S. Central | 104 | 78 | 73 | 81 | + | 81 | 76 |
| Blue Island | 12700 Sacramento | 92 | 85 | 78 | 80 | 97 | 91 | 84 |
| Calumet City | 755 Pulaski Rd. | 77 | 74 | 66 | 77 | + | 75 | 71 |
| Chicago Heights | Dixie Hwy. & 10 St. | 63 | 63 | 56 | + | 74 | 66 | 59 |
| Cicero | 15th St. & 50th Ave. | 90 | 75 | 76 | + | 83 | 80 | 76 |
| Des Plaines | 1755 S. Wolf Rd. | 61 | 54 | 58 | 59 | 73 | 67 | 56 |
| Evanston | 1454 Elmwood | 41 | 38 | 39 | + | + | 47 | 51 |
| Flossmoor | 999 Kedzie Ave. | 58 | 66 | 55 | 56 | 64 | 63 | 57 |
| Franklin Park | 3400 N. Rose St. | 70 | 59 | 59 | 67 | 77 | 70 | 69 |
| Harvey | 157th & Lexington | 79 | 75 | 67 | 70 | 79 | 76 | 70 |
| Hillside | Wolf Rd. & Harrison | 68 | 66 | 57 | 55 | 66 | 61 | 61 |
| Lyons | 4043 Joliet Ave. | - | - | - | - | - | - | 72 |
| McCook | 50th St. & Glencoe | 104 | 101 | 110 | 87 | 75 | + | + |
| Midlothian | 15202 Crawford Ave. | 62 | 59 | 49 | 54 | 68 | 63 | 59 |
| Morton Grove | 9111 Waukegan | + | 54 | 58 | 61 | 78 | 70 | 60 |
| Niles | 8955 Greenwood Ave. | 68 | 56 | 56 | 58 | 67 | 71 | 60 |
| Oak Park | 834 Lake St. | 53 | - | 53 | 48 | 64 | 63 | 56 |
| Orland Park | 133rd & LaGrange Rd. | 65 | 69 | 52 | 56 | 65 | 58 | + |
| Palatine | 1000 Quentin Rd. | 51 | 57 | 49 | 47 | 54 | 53 | 54 |
| River Forest | Lathrop & Oak | 67 | 59 | 55 | 57 | 68 | 68 | 64 |
| Summit | 60th St. & 74th Ave. | 89 | 86 | 78 | 80 | 93 | 87 | 73 |
| Wilmette | 9th St. & Central Ave. | 48 | 42 | 43 | 45 | 55 | 51 | 49 |
| Winnetka | 1112 Willow Rd. | 38 | 42 | 39 | 41 | 51 | 47 | + |
| Chicago: | | | | | | | | |
| Addams Elem. Sch. | 10810 S. Ave. "H" | 105 | 131 | 118 | 108 | 107 | 94 | 86 |
| Anthony Elem. Sch. | 9800 S. Torrence | 86 | 90 | 88 | 88 | 96 | 96 | 84 |
| Calumet H.S. | 8131 S. May St. | 69 | 73 | 69 | 68 | 68 | 62 | 64 |
| Carver H.S. | 801 E. 133rd Pl. | 73 | 91 | 83 | 85 | 92 | 96 | 75 |
| Chicago Ave. Pump. Sta. | 805 N. Michigan Ave. | - | - | - | - | - | - | 91 |
| Chicago Vocational H.S. | 2100 E. 87th St. | 76 | 79 | 75 | 77 | 79 | 87 | 69 |
| Cooley Vocational H.S. | 1450 Larrabee | - | - | - | - | - | 82 | 71 |
| Farr Dormitory | 3300 S. Michigan Ave. | - | - | - | - | - | - | 76 |
| Fenger Jr. College | 11220 S. Wallace | 80 | 80 | 72 | 71 | 79 | 69 | + |
| Hale Elem. Sch. | 6140 S. Melvina | 68 | 88 | 88 | 75 | 77 | 80 | 72 |
| Lakeview H.S. | 4015 N. Ashland | 70 | 72 | 66 | 63 | 67 | 69 | 59 |
| Logan Square | 2940 W. Cortland | 72 | 66 | 73 | 72 | 74 | 74 | 65 |
| South Water Filt. Plt. | 3300 E. Cheltenham Pl. | 67 | 67 | 78 | 61 | 73 | 73 | 66 |
| Sullivan H.S. | 6631 N. Bosworth Ave. | 57 | 58 | 53 | 60 | 56 | 60 | 55 |
| Washington H.S. | 3500 E. 114th St. | 148 | 175 | 170 | 121 | 129 | 119 | 111 |
| DU PAGE COUNTY | | | | | | | | |
| Addison | 130 W. Army Trail Rd. | 68 | 53 | 54 | 58 | 60 | 57 | 56 |
| Bensenville | Main & York | 93 | 109 | 88 | + | + | 76 | 69 |
| Darien | 1410 75th St. | - | - | - | 69 | 60 | 51 | 51 |
| Elmhurst | 118 Schiller | 69 | 69 | 71 | 66 | 64 | 64 | 58 |
| Glen Ellyn | 494 Pennsylvania St. | - | - | - | - | - | - | 47 |
| Naperville | 175 Jackson St. | 68 | 58 | 58 | 53 | 62 | 54 | 58 |
| West Chicago | 128 W. McConnell Ave. | 70 | 59 | 56 | 49 | 53 | 56 | 52 |
| Wheaton | 201 Reber St. | + | 58 | 59 | 53 | 59 | 52 | 53 |
| KANE COUNTY | | | | | | | | |
| Aurora | 770 N. Michels | - | - | - | - | - | - | 52 |
| Elgin | 150 Dexter | - | - | - | - | - | 57 | 55 |
| KANKAKEE COUNTY | | | | | | | | |
| Bradley | 610 E. Liberty | + | + | 70 | 70 | 64 | 67 | 76 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| **LAKE COUNTY** | | | | | | | | |
| Lake Bluff | 121 E. Sheridan Pl. | 42 | 43 | 40 | 41 | 44 | 43 | 39 |
| Waukegan | 106 Utica | 65 | 58 | 62 | 57 | 56 | + | + |
| Waukegan | Golf & Jackson | - | + | 46 | 44 | 50 | 50 | 42 |
| **MC HENRY COUNTY** | | | | | | | | |
| Cary | First & Three Oaks Rd. | + | + | 41 | 38 | 46 | 46 | 46 |
| **WILL COUNTY** | | | | | | | | |
| Braidwood | Sewage Plant | - | - | - | - | + | 61 | 60 |
| Joliet | Midland & Campbell Sts. | 71 | 72 | + | 75 | 77 | 77 | 67 |
| Joliet | 1425 N. Broadway | 78 | + | + | 71 | 71 | 71 | 69 |
| Joliet | 1216 Houbolt St. | 53 | 75 | 43 | + | 58 | 56 | 55 |
| Joliet | 501 Ella Ave. | 79 | 82 | 80 | 68 | 63 | 66 | 53 |
| Lockport | 5th & Madison | 70 | 68 | 63 | 53 | 69 | 64 | 56 |
| Monee | 432 E. Main St. | 48 | 64 | 56 | + | + | 56 | + |
| Rockdale | Volunteer Fire Dept. | 97 | 104 | 87 | + | 97 | 79 | 75 |
| Romeoville | Naperville Rd. | 65 | 80 | 58 | + | 59 | 51 | 49 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
## SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | | HIGHEST SAMPLES (PPM) | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 HR | 24 HR | 3-HR AVGS >.5 | 24-HR AVGS >.14 | 3-HR. AVG. | | 24-HR. AVG. | | ARITH. MEAN | STD. GEO. DEVIATION |
| | | | | | | 1st | 2nd | 1st | 2nd | | |
| COOK COUNTY | | | | | | | | | | | |
| Calumet City | 868 Marquette | 8416 | | 0 | 0 | .135 | .101 | .063 | .044 | .011 | 2.83 |
| Chicago Heights | Dixie Hwy & 10th St. | 8288 | | 0 | 0 | .144 | .102 | .064 | .053 | .009 | 2.63 |
| Lyons | 4043 Joliet Ave. | 7741 | | 0 | 0 | .153 | .110 | .088 | .049 | .010 | 3.59 |
| North Riverside | 2350 DesPlaines Ave. | 8066 | | 0 | 0 | .115 | .097 | .080 | .044 | .009 | 2.91 |
| Skokie | 9800 Lawler | 8210 | | 0 | 0 | .106 | .095 | .081 | .062 | .009 | 2.80 |
| Chicago: | | | | | | | | | | | |
| Logan Square | 3228 W. Palmer | 6168 | | 0 | 0 | .094 | .094 | .073 | .065 | + | |
| Northwestern University | Huron & Fairbanks | 8164 | | 0 | 0 | .135 | .129 | .071 | .068 | .010 | 2.94 |
| Southeast Police Station | 103rd & Luella | 5688 | | 0 | 0 | .139 | .119 | .101 | .064 | + | |
| State Office Building | 160 N. LaSalle | 8255 | | 0 | 0 | .109 | .108 | .065 | .061 | .011 | 2.90 |
| DU PAGE COUNTY | | | | | | | | | | | |
| Glen Ellyn | 308 Wilson | 8101 | | 0 | 0 | .097 | .082 | .060 | .046 | .006 | 2.95 |
| KANE COUNTY | | | | | | | | | | | |
| Elgin | 665 Dundee Rd. | 8197 | | 0 | 0 | .053 | .040 | .024 | .019 | .004 | 2.52 |
| LAKE COUNTY | | | | | | | | | | | |
| Waukegan | Golf & Jackson | 7977 | | 0 | 0 | .076 | .061 | .043 | .043 | .006 | 2.93 |
| WILL COUNTY | | | | | | | | | | | |
| Joliet | Joliet & Benton | 8043 | | 0 | 0 | .149 | .108 | .046 | .037 | .007 | 3.10 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SHORT-TERM TRENDS FOR SULFUR DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| COOK COUNTY | | | | | | | | |
| Calumet City | 868 Marquette | - | - | - | - | .018 | .014 | .011 |
| Chicago Heights | Dixie Hwy & 10th St. | + | .02 | .02 | .01 | .009 | .012 | .009 |
| Lyons | 4043 Joliet Ave. | - | - | - | - | - | - | .010 |
| North Riverside | 2350 DesPlaines Ave. | - | - | - | - | + | .011 | .009 |
| Skokie | 9800 Lawler | + | .02 | .01 | .01 | .009 | .015 | .009 |
| Chicago: | | | | | | | | |
| Logan Square | 3228 W. Palmer | - | - | - | - | - | - | + |
| Northwestern University | Huron & Fairbanks | - | - | - | .018 | .019 | .015 | .010 |
| Southeast Police Station | 103rd & Luella | - | - | - | - | - | - | + |
| State Office Building | 160 N. LaSalle | - | - | - | + | .022 | .016 | .011 |
| DU PAGE COUNTY | | | | | | | | |
| Glen Ellyn | 308 Wilson | - | - | - | - | - | - | .006 |
| KANE COUNTY | | | | | | | | |
| Elgin | 665 Dundee Rd. | - | - | - | - | - | - | .004 |
| LAKE COUNTY | | | | | | | | |
| Waukegan | Golf & Jackson | - | .011 | .012 | .007 | .009 | .006 | .006 |
| WILL COUNTY | | | | | | | | |
| Joliet | Joliet & Benton | .016 | .009 | .008 | .009 | .012 | .010 | .007 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# OZONE
(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | | HIGHEST SAMPLES (PPM) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL 1st | ANNUAL 2nd |
| COOK COUNTY | | | | | | | | | | | | | |
| Arlington Heights | 1211 New Wilke | 6173 | 50 | 1 | .077 | .078 | .087 | .173 | .102 | .071 | .041 | .173 | .105 |
| Calumet City | 868 Marquette | 8224 | 9 | 0 | .074 | .076 | .078 | .111 | .083 | .078 | .051 | .111 | .083 |
| Chicago Heights | Dixie Hwy & 10th St. | 8016 | 20 | 0 | .086 | .083 | .086 | .086 | .102 | .078 | .061 | .102 | .086 |
| Evanston | 531 Lincoln | 7733 | 83 | 2 | .062 | .080 | .110 | .129 | .151 | .104 | .052 | .151 | .129 |
| North Riverside | 2350 DesPlaines | 8523 | 29 | 1 | .078 | .080 | .093 | .153 | .099 | 081 | .052 | .153 | .103 |
| Skokie | 9800 Lawler | 8035 | 72 | 3 | .072 | .069 | .110 | .144 | .097 | 079 | .054 | .144 | .142 |
| Chicago: | | | | | | | | | | | | | |
| Lincoln Park Zoo | 2200 N. Cannon | 5842 | 21 | 0 | .054 | .071 | .080 | .114 | .093 | .078 | .046 | .114 | .104 |
| Museum Sci. & Ind. | 57th & Museum | 2915 | 47 | 1 | NS | NS | .115 | .131 | .113 | .055 | .052 | .131 | .118 |
| Roseland | 351 W. 104th St. | 5422 | 37 | 2 | .061 | .074 | .081 | .167 | .097 | .063 | NS | .167 | .129 |
| Stevenson El. Sch. | 8010 S. Kostner | 7651 | 22 | 1 | .063 | .062 | .069 | .139 | .099 | .056 | .047 | .139 | .106 |
| Taft H.S. | 6545 W. Hurlbut | 8077 | 59 | 2 | .049 | .076 | .084 | .176 | .099 | .069 | .041 | .176 | .141 |
| DU PAGE COUNTY | | | | | | | | | | | | | |
| Glen Ellyn | 308 Wilson | 6566 | 34 | 0 | .064 | .076 | .083 | .113 | .110 | .077 | .054 | .113 | .110 |
| KANE COUNTY | | | | | | | | | | | | | |
| Elgin | 665 Dundee | 8156 | 26 | 1 | .081 | .073 | .073 | .138 | .098 | .067 | .055 | .138 | .102 |
| KANKAKEE COUNTY | | | | | | | | | | | | | |
| Bourbonnais | Olivet Nazarene Col. | 7007 | 5 | 0 | .065 | .065 | .073 | .092 | .061 | .088 | .061 | .092 | .088 |
| LAKE COUNTY | | | | | | | | | | | | | |
| Deerfield | 1321 Wilmot | 8431 | 61 | 2 | .062 | .073 | .102 | .161 | .113 | .069 | .045 | .161 | .141 |
| Libertyville | 1441 Lake | 7712 | 45 | 2 | .065 | .074 | .091 | .163 | .100 | .068 | .046 | .163 | .138 |
| Waukegan | Golf & Jackson | 8218 | 82 | 4 | .060 | .072 | .093 | .133 | .172 | .068 | .047 | .172 | .133 |
| MC HENRY COUNTY | | | | | | | | | | | | | |
| Cary | First St. & 3 Oaks | 7888 | 50 | 1 | .089 | .080 | .096 | .164 | .112 | .071 | .062 | .164 | .112 |
| WILL COUNTY | | | | | | | | | | | | | |
| Braidwood | Sewage Plant | 6670 | 41 | 0 | .082 | .083 | .088 | .118 | .091 | .088 | .067 | .118 | .108 |
| South Lockport | 1911 S. Lawrence | 7099 | 28 | 0 | .073 | .083 | .067 | .110 | .106 | .065 | .057 | .110 | .106 |

NS - No samples
Numbers shown in parenthesis denote the number of samples exceeding .08 ppm in a given month.

# 1981
# NITROGEN DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1-HOUR | | 24-HOUR | | | |
| | | 1 HR | 24 HR | 1st | 2nd | 1st | 2nd | ARITH. MEAN | STD. GEO. DEVIATION |
| COOK COUNTY | | | | | | | | | |
| Alsip | 4500 W. 123rd St. | | 59 | NA | NA | .081 | .077 | .047 | 1.41 |
| Blue Island | 12700 Sacramento | | 58 | NA | NA | .088 | .087 | .049 | 1.53 |
| Cicero | 15th St. & 50th Ave. | | 54 | NA | NA | .086 | .082 | .050 | 1.36 |
| Des Plaines | 1755 S. Wolf Rd. | | 59 | NA | NA | .088 | .080 | .047 | 1.48 |
| Flossmoor | 999 Kedzie Ave. | | 55 | NA | NA | .082 | .075 | .037 | 1.55 |
| Harvey | 157th & Lexington | | 55 | NA | NA | .100 | .077 | .042 | 1.44 |
| Hillside | Wolf Rd. & Harrison | | 59 | NA | NA | .074 | .073 | .045 | 1.44 |
| Morton Grove | 9111 Waukegan | | 58 | NA | NA | .109 | .097 | .048 | 1.48 |
| North Riverside | 2350 DesPlaines | 2604 | | .104 | .101 | .052 | .051 | + | |
| Oak Park | 834 Lake St. | | 60 | NA | NA | .103 | .086 | .046 | 1.33 |
| Summit | 60th & 74th Ave. | | 57 | NA | NA | .102 | .088 | .048 | 1.41 |
| Wilmette | 9th St. & Central Ave. | | 58 | NA | NA | .088 | .085 | .043 | 1.54 |
| Chicago: | | | | | | | | | |
| Addams Elem. Sch. | 10810 S. Ave. "H" | | 60 | NA | NA | .056 | .054 | .031 | 1.47 |
| Cooley Vocational H.S. | 1450 Larrabee | | 61 | NA | NA | .063 | .061 | .037 | 1.47 |
| Edgewater | 5358 N. Ashland | | 61 | NA | NA | .071 | .068 | .041 | 1.42 |
| GSA Building | 538 S. Clark | | 60 | NA | NA | .070 | .069 | .044 | 1.34 |
| Lincoln Park Zoo | 2200 N. Cannon | 3824 | | .274 | .132 | .066 | .055 | + | |
| Northwestern University | Huron & Fairbanks | 7023 | | .208 | .201 | .071 | .067 | .032 | 1.81 |
| South Water Filt. Plant | 3300 E. Cheltenham | | 57 | NA | NA | .069 | .054 | .029 | 1.79 |
| State Office Building | 160 N. LaSalle | 8113 | | .195 | .156 | .086 | .083 | .038 | 1.62 |
| Steinmetz H.S. | 3030 N. Mobile | | 55 | NA | NA | .062 | .058 | .035 | 1.42 |
| Stevenson Elem. Sch. | 8010 S. Kostner | | 58 | NA | NA | .058 | .055 | .035 | 1.37 |
| Taft H.S. | 6545 W. Hurlbut | | 59 | NA | NA | .069 | .058 | .035 | 1.48 |

# SHORT-TERM TRENDS FOR NITROGEN DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| COOK COUNTY | | | | | | | | |
| Alsip | 4500 W. 123rd St. | - | - | - | - | - | .048 | .047 |
| Blue Island | 12700 Sacramento | .037 | .036 | .039 | .050 | .067 | .047 | .049 |
| Cicero | 15th St. & 50th Ave. | .040 | .041 | .046 | + | .078 | .060 | .050 |
| Des Plaines | 1755 S. Wolf Rd. | .036 | .036 | .040 | .052 | .069 | .054 | .047 |
| Flossmoor | 999 Kedzie | + | .031 | .035 | .045 | .059 | .045 | .037 |
| Harvey | 157th & Lexington | .038 | .036 | .041 | .052 | .059 | .047 | .042 |
| Hillside | Wolf Rd. & Harrison | .037 | .037 | .041 | .053 | .067 | .050 | .045 |
| Morton Grove | 9111 Waukegan | - | + | .044 | .056 | .062 | .051 | .048 |
| North Riverside | 2350 Des Plaines | - | - | - | - | + | + | + |
| Oak Park | 834 Lake St. | .041 | - | .045 | .058 | .067 | .053 | .046 |
| Summit | 60th & 74th Ave. | .039 | .039 | .043 | .054 | .067 | .050 | .048 |
| Wilmette | 9th St. & Central Ave. | .029 | .028 | .036 | .045 | .061 | .045 | .043 |
| Chicago: | | | | | | | | |
| Addams Elem. Sch. | 10810 S. Ave. "H" | .031 | .034 | .038 | .037 | .045 | .036 | .031 |
| Cooley Vocational H.S. | 1450 Larrabee | - | - | - | - | - | .045 | .037 |
| Edgewater | 5358 N. Ashland | - | .038 | .041 | .047 | .053 | .052 | .041 |
| GSA Building | 538 S. Clark | .044 | .044 | .050 | .055 | .058 | .053 | .044 |
| Lincoln Park Zoo | 2200 N. Cannon | - | - | - | - | - | - | + |
| Northwestern University | Huron & Fairbanks | - | - | - | + | .035 | + | .032 |
| South Water Filt. Plant | 3300 E. Cheltenham | .026 | .027 | .029 | .029 | + | .028 | .029 |
| State Office Building | 160 N. LaSalle | - | - | + | + | .040 | + | .038 |
| Steinmetz H.S. | 3030 N. Mobile | .035 | .035 | .039 | .043 | .049 | .039 | .035 |
| Stevenson Elem. Sch. | 8010 S. Kostner | .034 | .034 | .032 | .037 | .050 | .040 | .035 |
| Taft H.S. | 6545 W. Hurlbut | .036 | .038 | .037 | .041 | .051 | .043 | .035 |

NA - Not applicable.
- Station not in operation during year shown.
+ Did not meet minumum statistical selection criteria (See Section 4.1).

# 1981
# CARBON MONOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NO OF SAMPLES | NUMBER OF AVERAGES | | HIGHEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 - HR >35 PPM | 8 HR >9 PPM | 1-HR AVERAGE | | | 8-HR AVERAGE | | |
| | | | | | 1st | 2nd | 3rd | 1st | 2nd | 3rd |
| COOK COUNTY | | | | | | | | | | |
| Calumet City | 868 Marquette | 8237 | 0 | 0 | 9.9 | 8.8 | 8.5 | 6.9 | 6.6 | 6.5 |
| Chicago Heights | Dixie Hwy. & 10th St. | 8106 | 0 | 0 | 12.0 | 11.9 | 11.0 | 9.0 | 7.6 | 5.1 |
| North Riverside | 2350 Des Plaines Ave. | 7949 | 0 | 0 | 13.3 | 13.2 | 12.5 | 8.6 | 7.4 | 7.1 |
| Skokie | 9800 Lawler | 8507 | 0 | 0 | 11.9 | 9.6 | 9.0 | 8.1 | 5.6 | 5.3 |
| Chicago: | | | | | | | | | | |
| Logan Square | 3228 W. Palmer | 6762 | 0 | 2 | 22.5 | 14.7 | 13.0 | 10.3 | 9.6 | 7.0 |
| State Office Bldg. | 160 N. LaSalle | 7616 | 0 | 3 | 20.8 | 16.5 | 16.4 | 10.6 | 9.6 | 9.6 |
| WILL COUNTY | | | | | | | | | | |
| Joliet | 71 N. Ottawa | 4278 | 0 | 1 | 18.7 | 18.2 | 12.5 | 9.5 | 7.3 | 6.2 |
| Joliet | Ottawa & Washington | 3147 | 0 | 0 | 9.6 | 9.5 | 9.3 | 7.0 | 6.6 | 6.4 |

# NON - METHANE HYDROCARBONS
(PARTS PER MILLION)

| STATION | ADDRESS | NO OF AVERAGES | | HIGHEST AVERAGES (PPM) (6 - 9 am) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL 6-9am | >.24 6-9am | JAN | FEB | MAR | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | NOV | DEC |
| COOK COUNTY | | | | | | | | | | | | | | | |
| Chicago: | | | | | | | | | | | | | | | |
| Northwestern Univ. | Huron & Fairbanks | 62 | 47 | NS | NS | NS | NS | NS | NS | 1.0 | 1.3 | 1.0 | 0.3 | NS | NS |
| State Office Bldg. | 160 N. LaSalle | 64 | 58 | NS | NS | NS | NS | NS | NS | 1.8 | 1.7 | 2.0 | 0.4 | NS | NS |

NS - No sample.

# 1981
# LEAD

(MICROGRAMS PER CUBIC METER)

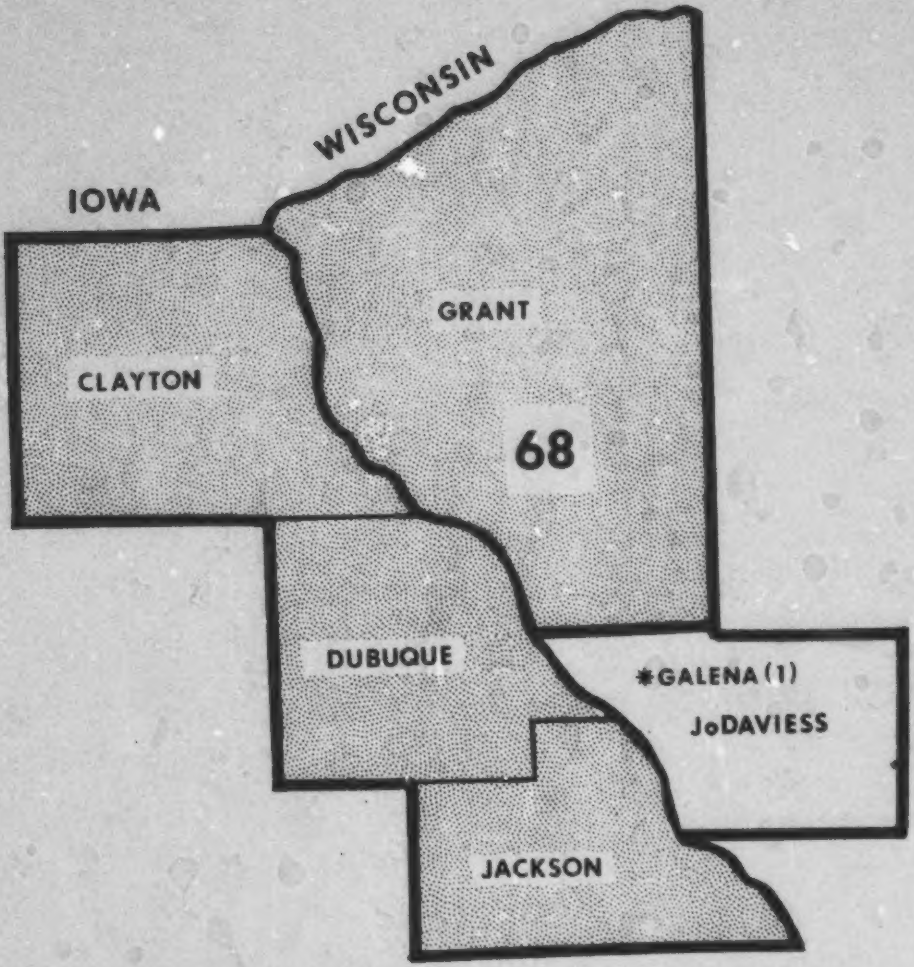
| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m$^3$) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| COOK COUNTY | | | | | | | |
| Alsip | 4500 W. 123rd St. | 0 | 0.21 | 0.26 | 0.20 | 0.29 | 0.24 |
| Arlington Heights | 33 S. Arlington Hts. Rd. | 0 | 0.26 | 0.34 | 0.31 | 0.43 | 0.34 |
| Bedford Park | 6535 S. Central | 0 | 0.32 | 0.21 | 0.26 | 0.39 | 0.30 |
| Blue Island | 12700 Sacramento | 0 | 0.41 | 0.36 | 0.43 | 0.43 | 0.41 |
| Calumet City | 755 Pulaski Rd. | 0 | 0.28 | 0.33 | 0.37 | 0.40 | 0.34 |
| Chicago Heights | Dixie Hwy. & 10th St. | 0 | 0.20 | 0.20 | 0.28 | 0.30 | 0.25 |
| Cicero | 15th St. & 50th Ave. | 0 | 0.47 | 0.36 | 0.44 | 0.48 | 0.44 |
| Des Plaines | 1755 S. Wolf Rd. | 0 | 0.24 | 0.26 | 0.27 | 0.36 | 0.28 |
| Evanston | 1454 Elmwood | 0 | 0.34 | 0.25 | 0.34 | 0.36 | 0.32 |
| Flossmoor | 999 Kedzie | 0 | 0.19 | 0.23 | 0.26 | 0.31 | 0.25 |
| Franklin Park | 3400 N. Rose St. | 0 | 0.24 | 0.31 | 0.40 | 0.41 | 0.34 |
| Harvey | 157th & Lexington | 0 | 0.29 | 0.30 | 0.31 | 0.45 | 0.34 |
| Hillside | Wolf Rd. & Harrison | 0 | 0.31 | 0.28 | 0.37 | 0.43 | 0.35 |
| Lyons | 4043 Joliet Ave. | 0 | 0.34 | 0.39 | 0.34 | 0.42 | 0.37 |
| McCook | 50th St. & Glencoe | 0 | + | 0.24 | + | + | + |
| Midlothian | 15202 Crawford Ave. | 0 | 0.22 | 0.19 | 0.25 | 0.29 | 0.24 |
| Morton Grove | 9111 Waukegan Rd. | 0 | 0.27 | 0.27 | 0.27 | 0.44 | 0.31 |
| Niles | 8955 Greenwood Ave. | 0 | 0.29 | 0.38 | 0.39 | 0.50 | 0.39 |
| Oak Park | 834 Lake St. | 0 | 0.26 | 0.27 | 0.28 | 0.30 | 0.28 |
| Orland Park | 133rd & LaGrange Rd. | 0 | 0.25 | 0.22 | 0.26 | + | + |
| Palatine | 1000 Quentin Rd. | 0 | 0.19 | 0.30 | 0.29 | 0.34 | 0.28 |
| River Forest | Lathrop & Oak | 0 | 0.32 | 0.35 | 0.35 | 0.42 | 0.36 |
| Summit | 60th & 74th Ave. | 0 | 0.36 | 0.27 | 0.44 | 0.36 | 0.36 |
| Wilmette | 9th St. & Central Ave. | 0 | 0.16 | 0.23 | 0.29 | 0.27 | 0.24 |
| Winnetka | 1112 Willow Rd. | 0 | 0.15 | 0.16 | 0.19 | + | + |
| Chicago: | | | | | | | |
| Addams Elem. Sch. | 10810 S. Ave. "H" | 0 | 0.29 | 0.30 | 0.34 | 0.39 | 0.33 |
| Anthony Elem. Sch. | 9800 S. Torrence | 0 | 0.32 | 0.34 | 0.41 | 0.49 | 0.40 |
| Calumet H.S. | 8131 S. May St. | 0 | 0.24 | 0.31 | 0.31 | 0.33 | 0.30 |
| Carver H.S. | 801 E. 133rd Pl. | 0 | 0.19 | 0.23 | 0.24 | 0.32 | 0.25 |
| Chicago Ave. Pump. Sta. | 805 N. Michigan Ave. | 0 | 0.34 | 0.42 | 0.44 | 0.46 | 0.42 |
| Chicago Vocational H.S. | 2100 E. 87th St. | 0 | 0.39 | 0.33 | 0.29 | 0.28 | 0.32 |
| Cooley Vocational H.S. | 1450 Larrabee | 0 | 0.29 | 0.36 | 0.35 | 0.24 | 0.33 |
| Farr Dormitory | 3300 S. Michigan Ave. | 0 | 0.25 | 0.27 | 0.37 | 0.32 | 0.35 |
| Fenger Jr. College | 11220 S. Wallace | 0 | 0.25 | 0.27 | 0.28 | + | 0.26 |
| Hale Elem. Sch. | 6140 S. Melvina | 0 | 0.28 | 0.24 | 0.31 | 0.41 | 0.31 |
| Lakeview H.S. | 4015 N. Ashland | 0 | 0.21 | 0.36 | 0.36 | 0.38 | 0.33 |
| Logan Square | 2940 W. Cortland | 0 | 0.29 | 0.33 | 0.40 | 0.42 | 0.36 |
| South Water Filt. Plant | 3300 E. Cheltenham Pl. | 0 | 0.23 | 0.34 | 0.31 | 0.33 | 0.30 |
| Sullivan H.S. | 6631 N. Bosworth Ave. | 0 | 0.16 | 0.27 | 0.26 | 0.27 | 0.24 |
| Washington H.S. | 3500 E. 114th St. | 0 | 0.89 | 0.49 | 0.39 | 0.44 | 0.55 |
| DU PAGE COUNTY | | | | | | | |
| Addison | 130 W. Army Trail Rd. | 0 | 0.22 | 0.21 | 0.31 | 0.43 | 0.29 |
| Bensenville | Main & York | 0 | 0.27 | 0.25 | 0.30 | 0.42 | 0.31 |
| Darien | 1410 75th St. | 0 | 0.13 | 0.15 | 0.20 | 0.27 | 0.19 |
| Elmhurst | 118 Schiller | 0 | 0.23 | 0.24 | 0.29 | 0.41 | 0.29 |
| Glen Ellyn | 494 Pennsylvania St. | 0 | 0.17 | 0.17 | 0.20 | 0.33 | 0.22 |
| Naperville | 175 Jackson St. | 0 | 0.17 | 0.18 | 0.22 | 0.37 | 0.24 |
| West Chicago | 128 W. McConnell Ave. | 0 | 0.13 | 0.15 | 0.17 | 0.26 | 0.18 |
| Wheaton | 201 Reber St. | 0 | 0.15 | 0.16 | 0.21 | 0.25 | 0.19 |
| KANE COUNTY | | | | | | | |
| Aurora | 770 N. Michels | 0 | 0.16 | 0.16 | 0.18 | 0.27 | 0.19 |
| Elgin | 150 Dexter | 0 | 0.26 | 0.84 | 0.82 | 0.40 | 0.58 |
| KANKAKEE COUNTY | | | | | | | |
| Bradley | 610 E. Liberty | 0 | 0.14 | 0.13 | 0.12 | + | 0.14 |

# 1981
# LEAD

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m$^3$) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| LAKE COUNTY | | | | | | | |
| Lake Bluff | 121 E. Sheridan Pl. | 0 | 0.06 | 0.13 | 0.13 | 0.14 | 0.11 |
| Waukegan | 106 Utica | 0 | 0.14 | 0.18 | 0.19 | + | + |
| Waukegan | Golf & Jackson | 0 | 0.15 | 0.14 | 0.23 | 0.22 | 0.18 |
| MC HENRY COUNTY | | | | | | | |
| Cary | First & Three Oaks Rd. | 0 | 0.08 | 0.13 | 0.12 | 0.19 | 0.13 |
| WILL COUNTY | | | | | | | |
| Braidwood | Sewage Plant | 0 | 0.06 | 0.09 | 0.08 | 0.11 | 0.09 |
| Joliet | Midland & Campbell Sts. | 0 | 0.15 | 0.16 | 0.20 | 0.22 | 0.18 |
| Joliet | 1425 N. Broadway | 0 | 0.14 | 0.24 | 0.21 | 0.26 | 0.22 |
| Joliet | 1216 Houbolt St. | 0 | 0.10 | 0.11 | 0.12 | 0.20 | 0.14 |
| Joliet | 501 Ella Ave. | 0 | 0.10 | 0.16 | 0.16 | 0.17 | 0.15 |
| Lockport | 5th & Madison | 0 | 0.12 | 0.16 | 0.18 | 0.24 | 0.16 |
| Monee | 432 E. Main St. | 0 | 0.12 | 0.13 | 0.15 | + | 0.12 |
| Rockdale | Volunteer Fire Dept. | 0 | 0.17 | 0.14 | 0.18 | 0.23 | 0.18 |
| Romeoville | Naperville Rd. | 0 | 0.11 | 0.14 | 0.18 | 0.23 | 0.16 |

# AIR QUALITY CONTROL REGION 68
# METROPOLITAN DUBUQUE INTERSTATE
# (IOWA-ILLINOIS-WISCONSIN)


WISCONSIN
IOWA
GRANT
CLAYTON
68
DUBUQUE
*GALENA (1)
JoDAVIESS
JACKSON

Data for the Iowa, Wisconsin portion of this control region can be obtained from:

Iowa Department of
Environmental Quality,
Henry A. Wallace Bldg.
900 E. Grand Avenue
Des Moines, Iowa 50319
(515) 281-8692

Wisconsin Department of
Natural Resources,
Bureau of Air Pollution Control,
Box 450,
Madison, Wisconsin 53701
(608) 266-7718

(The number of sampling sites in each city is shown in parenthesis following the city name.)

## METROPOLITAN DUBUQUE INTERSTATE (IOWA-ILLINOIS-WISCONSIN) AIR QUALITY CONTROL (AQCR) 68

### Total Suspended Particulates

The only site in the Illinois portion of this AQCR was Galena and it did not record sufficient data for a valid annual average. The maximum 24-hour average of 130 ug/$m^3$ is below the 24-hour secondary standard of 150 ug/$m^3$.

### Lead

The highest quarterly average at Galena was 0.34 ug/$m^3$ well below the quarterly standard of 1.5 ug/$m^3$.

### Sulfur Dioxide, Ozone, Nitrogen Dioxide, Carbon Monoxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

## 1981
## TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M$^3$ | >260 UG/M$^3$ | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| JO DAVIESS COUNTY | | | | | | | | | | |
| Galena | S. Commerce St. | 50 | 0 | 0 | 130 | 104 | 101 | 89 | + | |

## SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

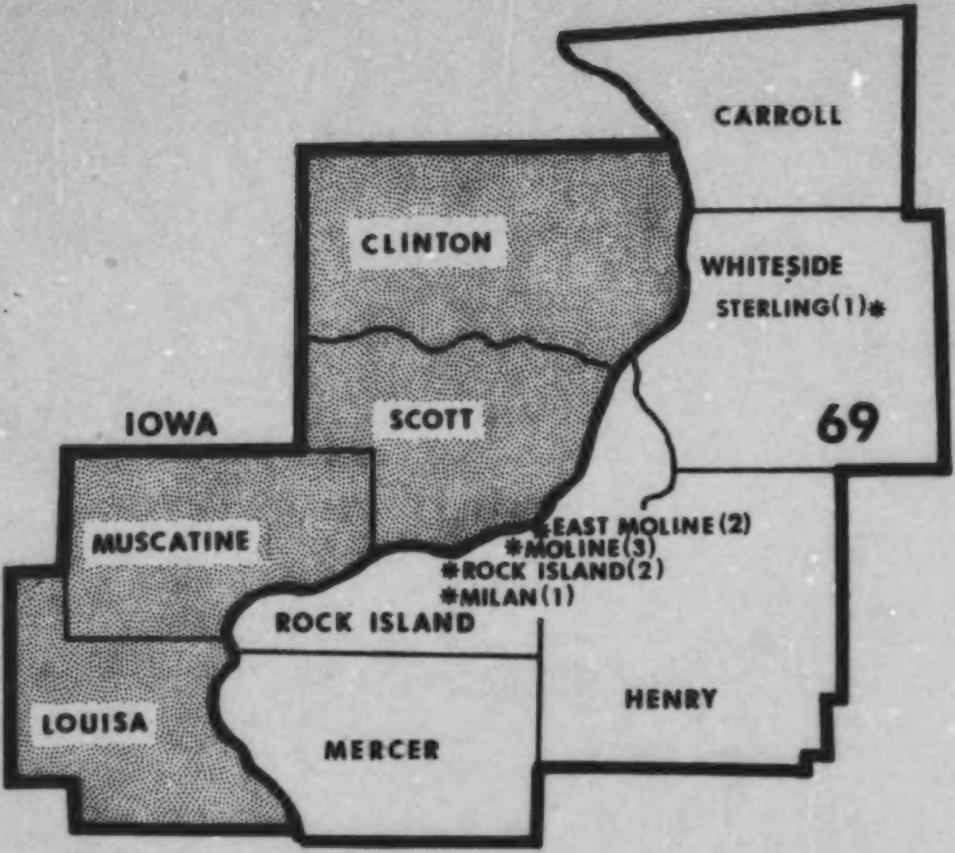
| STATION | ADDRESS | ANNUAL MEAN (UG/M$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| JO DAVIESS COUNTY | | | | | | | | |
| Galena | S. Commerce St. | 70 | 70 | 68 | 67 | + | + | + |

## LEAD
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m$^3$) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| JO DAVIESS COUNTY | | | | | | | |
| Galena | S. Commerce St. | 0 | 0.21 | 0.15 | 0.34 | + | 0.27 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

# AIR QUALITY CONTROL REGION 69
# METROPOLITAN QUAD CITIES INTERSTATE
# (ILLINOIS-IOWA)

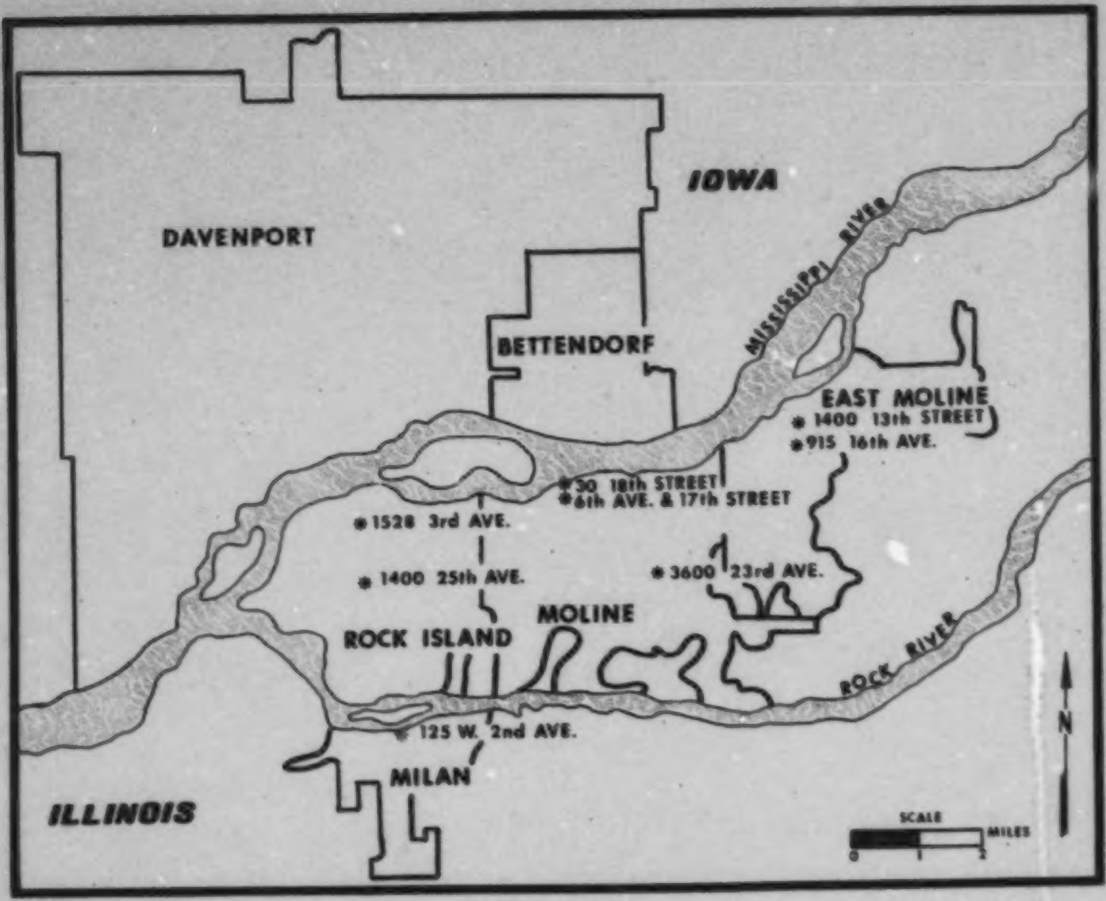

CARROLL
CLINTON
WHITESIDE
STERLING(1)*
SCOTT
69
IOWA
MUSCATINE
*EAST MOLINE(2)
*MOLINE(3)
*ROCK ISLAND(2)
*MILAN(1)
ROCK ISLAND
LOUISA
HENRY
MERCER

Data for the Iowa portion of this control region can be obtained from:

Iowa Department of Environmental Quality,
Henry A. Wallace Building
900 E. Grand Ave.
Des Moines, Iowa 50319
(515) 281-8692

(The number of sampling sites in each city is shown in parenthesis following the city name.

# METROPOLITAN QUAD CITIES


IOWA
DAVENPORT
BETTENDORF
MISSISSIPPI RIVER
EAST MOLINE
* 1400 13th STREET
* 915 16th AVE.
* 30 18th STREET
* 6th AVE. & 17th STREET
* 1528 3rd AVE.
* 1400 25th AVE.
* 3600 23rd AVE.
MOLINE
ROCK ISLAND
ROCK RIVER
* 125 W. 2nd AVE.
MILAN
ILLINOIS
SCALE
MILES
0
1
2
N

# METROPOLITAN QUAD CITIES INTERSTATE (IOWA-ILLINOIS) AIR QUALITY CONTROL REGION (AQCR) 69

## Total Suspended Particulates

Four of six sites in the Illinois portion of this AQCR had valid annual averages. Milan was the only site above the primary annual standard of 75 ug/m$^3$ with a value of 83 ug/m$^3$. None of the sites recorded any 24-hour samples in excess of the 24-hour primary standard of 260 ug/m$^3$ with the highest 24-hour average of 190 ug/m$^3$ being recorded at Milan.

## Lead

No lead violations were recorded in the Illinois portion of this AQCR. The highest quarterly average was 0.30 ug/m$^3$ recorded at Milan.

## Sulfur Dioxide

The only site in the Illinois portion of this AQCR that monitored for $SO_2$ in 1981 was located in Moline. This site recorded an annual average of 0.005 ppm, well below the primary annual standard of 0.03 ppm. There were no excursions of the 3-hour secondary standard of 0.5 ppm or the 24-hour primary standard of 0.14 ppm. The highest 3-hour average was 0.095 ppm and the highest 24-hour average was 0.051 ppm.

## Ozone

Two sites monitored for ozone in the Illinois portion of this AQCR during the 1981 ozone season. Neither site recorded any days with ozone concentration greater than 0.12 ppm. The maximum hourly value was 0.105 ppm recorded in Cordova. Cordova also recorded 45 hours with ozone concentrations above 0.08 ppm.

## Carbon Monoxide

Moline was the only site in the Illinois portion of this AQCR. The highest 1-hour average was 16.1 ppm, substantially less than the 1-hour primary standard of 35 ppm. The high 8-hour average of 7.7 ppm was below the primary 8-hour standard of 9 ppm.

## Nitrogen Dioxide, Non-Methane Hydrocarbon

Data for these pollutants not collected in the Illinois portion of this AQCR.

# 1981
# TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M$^3$ | >260 UG/M$^3$ | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| ROCK ISLAND COUNTY | | | | | | | | | | |
| East Moline | 915 16th Ave. | 45 | 1 | 0 | 163 | 138 | 136 | 127 | + | |
| East Moline | 1400 13th St. | 54 | 0 | 0 | 126 | 116 | 115 | 108 | 64 | 1.4 |
| Milan | 125 W. 2nd Ave. | 50 | 2 | 0 | 190 | 167 | 131 | 130 | 83 | 1.4 |
| Moline | 3600 23rd Ave. | 52 | 0 | 0 | 88 | 86 | 85 | 83 | 53 | 1.3 |
| Rock Island | 1528 3rd Ave. | 54 | 2 | 0 | 175 | 156 | 133 | 129 | 69 | 1.6 |
| Rock Island | 1400 25th Ave. | 32 | 1 | 0 | 183 | 105 | 101 | 98 | + | |

# SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| ROCK ISLAND COUNTY | | | | | | | | |
| East Moline | 915 16th Ave. | 82 | 79 | 79 | 81 | 90 | 86 | + |
| East Moline | 1400 13th St. | - | - | - | - | 65 | 65 | 64 |
| Milan | 125 W. 2nd Ave. | 90 | 90 | 86 | 87 | 91 | 96 | 83 |
| Moline | 3600 23rd Ave. | 52 | 54 | 53 | 52 | 61 | 65 | 53 |
| Rock Island | 1528 3rd Ave. | 68 | 70 | 74 | 71 | 72 | 67 | 69 |
| Rock Island | 1400 25th Ave. | 61 | 61 | 58 | 52 | 59 | 57 | + |

# SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | | HIGHEST SAMPLES (PPM) | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3-HR. AVG. | | 24-HR. AVG. | | | |
| | | 1 HR | 24 HR | 3-HR AVGS >.5 | 24-HR AVGS >.14 | 1st | 2nd | 1st | 2nd | ARITH. MEAN | STD. GEO. DEVIATION |
| ROCK ISLAND COUNTY | | | | | | | | | | | |
| Moline | 30 18th St. | 7917 | | 0 | 0 | .095 | .092 | .051 | .044 | .005 | 2.82 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SHORT-TERM TRENDS FOR SULFUR DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| ROCK ISLAND COUNTY | | | | | | | | |
| Moline | 30 18th St. | - | - | - | 008 | .009 | 007 | .005 |

## OZONE
(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST SAMPLES (PPM) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL 1st | ANNUAL 2nd |
| ROCK ISLAND COUNTY | | | | | | | | | | | | | |
| Cordova | Post Office | 4605 | 45 | 0 | .101 | .072 | .089 | .105 | .091 | .072 | .049 | .105 | .101 |
| Moline | 30 18th St. | 8504 | 12 | 0 | .081 | .085 | .075 | .093 | .083 | .080 | .053 | .093 | .091 |

## CARBON MONOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NO OF SAMPLES | NUMBER OF AVERAGES | | HIGHEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1-HR AVERAGE | | | 8-HR AVERAGE | | |
| | | | 1-HR >35 PPM | 8-HR >9 PPM | 1st | 2nd | 3rd | 1st | 2nd | 3rd |
| ROCK ISLAND COUNTY | | | | | | | | | | |
| Moline | 30 18th St. | 8375 | 0 | 0 | 16.1 | 12.6 | 12.0 | 7.7 | 7.7 | 7.0 |

- Station not in operation during year shown.

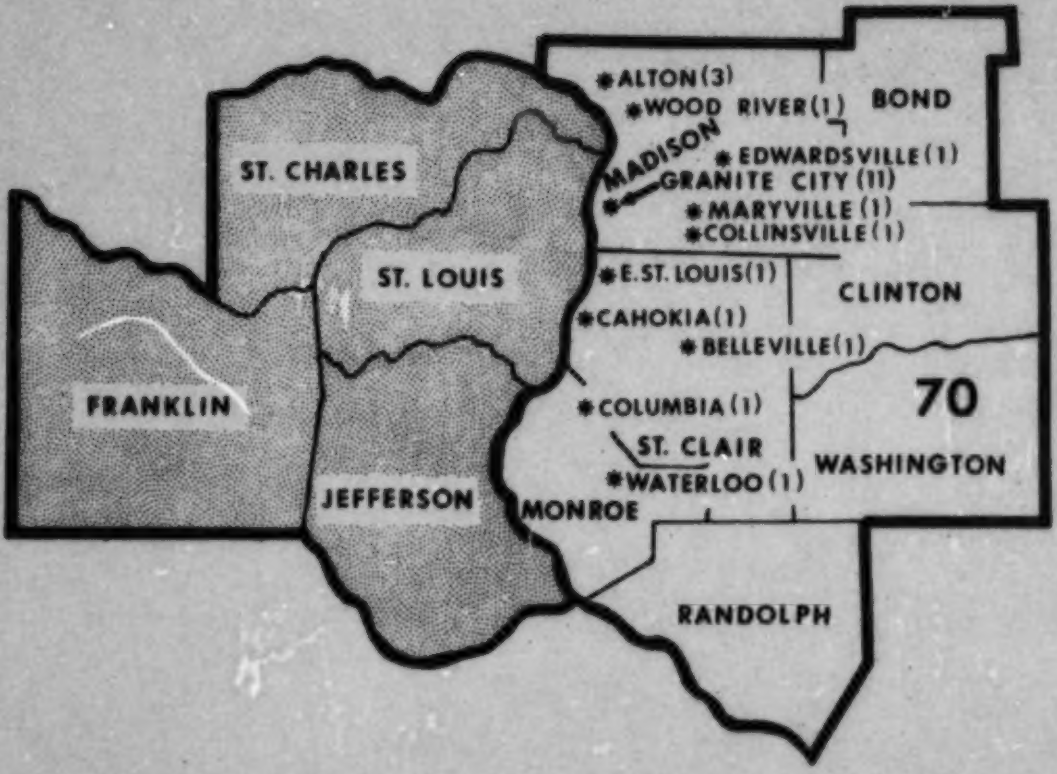
# 1981
# LEAD

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m$^3$) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| ROCK ISLAND COUNTY | | | | | | | |
| East Moline | 915 16th Ave. | 0 | 0.25 | 0.19 | 0.19 | + | 0.21 |
| East Moline | 1400 13th St. | 0 | 0.15 | 0.10 | 0.14 | 0.20 | 0.15 |
| Milan | 125 W. 2nd Ave. | 0 | 0.24 | 0.15 | 0.30 | 0.29 | 0.24 |
| Moline | 3600 23rd Ave. | 0 | 0.15 | 0.10 | 0.11 | + | 0.12 |
| Rock Island | 1528 3rd Ave. | 0 | 0.17 | 0.15 | 0.21 | 0.28 | 0.20 |
| Rock Island | 1400 25th Ave. | 0 | 0.11 | + | 0.15 | + | + |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

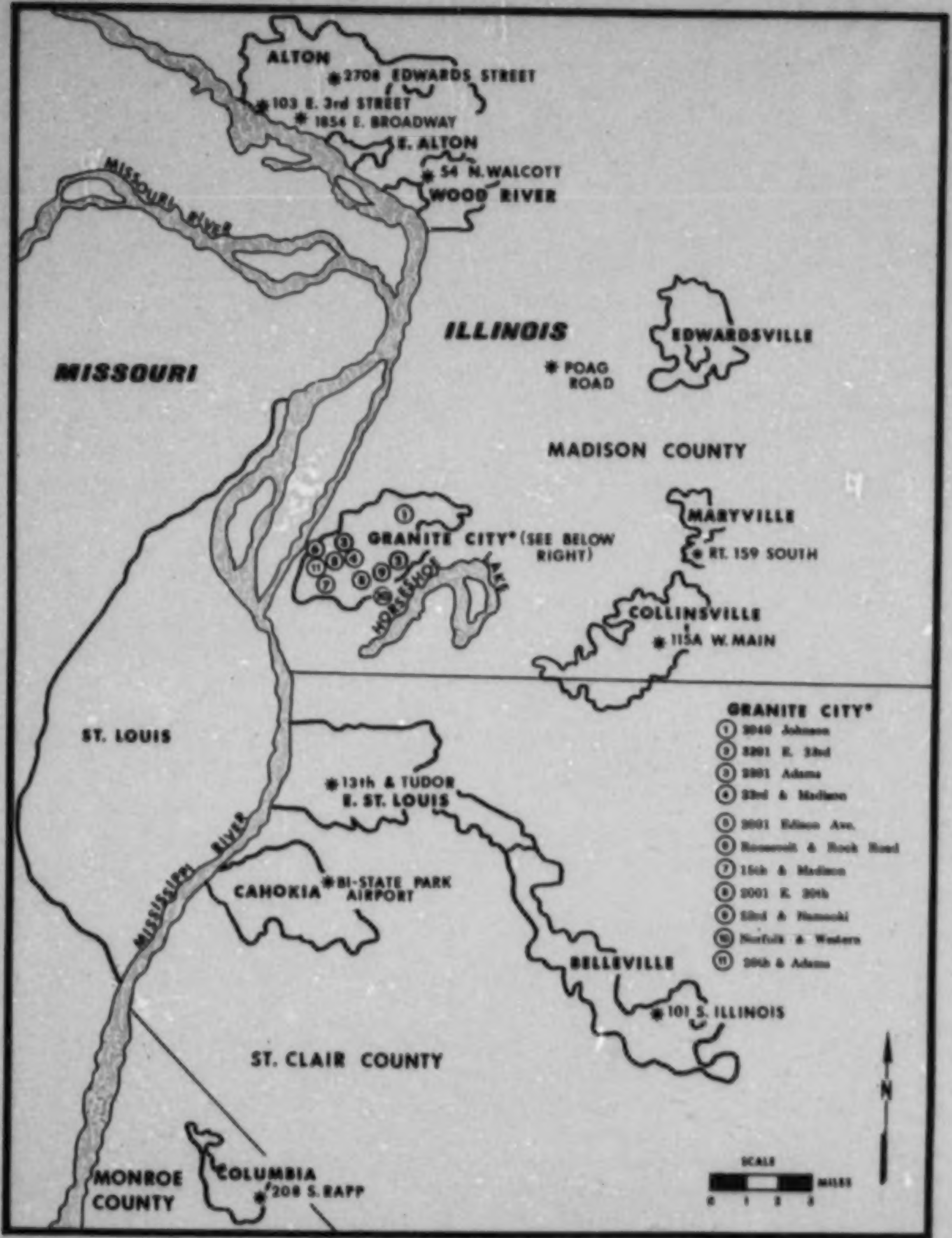
# AIR QUALITY CONTROL REGION 70
## METROPOLITAN ST. LOUIS INTERSTATE
## (ILLINOIS-MISSOURI)


ALTON (3)
WOOD RIVER (1)
BOND
MADISON
EDWARDSVILLE (1)
GRANITE CITY (11)
MARYVILLE (1)
COLLINSVILLE (1)
ST. CHARLES
ST. LOUIS
E. ST. LOUIS (1)
CLINTON
CAHOKIA (1)
BELLEVILLE (1)
FRANKLIN
COLUMBIA (1)
70
ST. CLAIR
WATERLOO (1)
WASHINGTON
JEFFERSON
MONROE
RANDOLPH

Data for the Missouri portion of this control region can be obtained from:
Missouri Department of Natural Resources,
Division of Environmental Quality,
P.O. Box 176, 117 Commerce Drive,
Jefferson City, Missouri 65101
(314) 751-3241

(The number of sampling sites in each city is shown in parenthesis following the city name.)

# METRO-EAST AREA


ALTON
2708 EDWARDS STREET
103 E. 3rd STREET
1854 E. BROADWAY
E. ALTON
54 N. WALCOTT
WOOD RIVER
MISSOURI RIVER
ILLINOIS
EDWARDSVILLE
POAG ROAD
MISSOURI
MADISON COUNTY
MARYVILLE
GRANITE CITY* (SEE BELOW RIGHT)
RT. 159 SOUTH
HORSESHOE LAKE
COLLINSVILLE
115A W. MAIN
1
2
3
4
5
6
7
8
9
10
11
ST. LOUIS
GRANITE CITY*
① 3040 Johnson
② 3201 E. 23rd
③ 2901 Adams
④ 23rd & Madison
⑤ 3001 Edison Ave.
⑥ Roosevelt & Rock Road
⑦ 15th & Madison
⑧ 2001 E. 20th
⑨ 32nd & Nameoki
⑩ Norfolk & Western
⑪ 20th & Adams
13th & TUDOR
E. ST. LOUIS
MISSISSIPPI RIVER
CAHOKIA
BI-STATE PARK AIRPORT
BELLEVILLE
101 S. ILLINOIS
ST. CLAIR COUNTY
N
SCALE
MILES
0
1
2
3
MONROE COUNTY
COLUMBIA
208 S. RAPP

## METROPOLITAN ST. LOUIS INTERSTATE (ILLINOIS-MISSOURI) AIR QUALITY CONTROL REGION (AQCR) 70

### Total Suspended Particulates

A total of 16 sites had sufficient data for valid annual averages in the Illinois portion of this AQCR. Ten of these sites recorded annual averages above the annual primary standard of 75 ug/m$^3$. All eight sites in Granite City remained above the annual standard in 1981; however, six of those sites showed some improvement over levels recorded in 1980. The two exceptions are Norfolk & Western and 2001 E. 20th. The 190 ug/m$^3$ annual mean at 2001 E. 20th is the highest in the State. All other sites in the AQCR showed an improvement over 1980. Figure 5 is a map of the Metro-East area listing the annual means.

Six sites recorded at least one excursion of the 24-hour primary standard of 260 ug/m$^3$ with three of these (all in Granite City) recording more than one excursion and as such are in violation of the standard. The site at 2001 E. 20th in Granite City recorded the most excursions with 13 out of 60 total samples (22%). The first and second highest 24-hour values in the State were also recorded in Granite City at Norfolk & Western with values of 889 ug/m$^3$ and 534 ug/m$^3$.

### Lead

Two sites in the Illinois portion of this AQCR, both in Granite City, recorded violations of the quarterly standard of 1.5 ug/m$^3$. The site at 15th and Madison exceeded the standard three of the four quarters with the highest average being 7.27 ug/m$^3$ in the 4th quarter. This same site exceeded the standard for two quarters in 1980. The site at 20th and Adams exceeded the standard for one quarter in 1981.

### Sulfur Dioxide

All six sites in the Illinois portion of this AQCR collected sufficient data for valid annual averages. All sites were below the primary annual standard of 0.03 ppm with East St. Louis recording the highest annual average of 0.021 ppm. Figure 6 is a map of the Metro-East area listing the annual means.

East St. Louis is the only site to record an excursion of the 24-hour primary standard of 0.14 ppm with a value of 0.146 ppm. No excursion of the 3-hour secondary standard of 0.5 ppm were recorded in the Illinois portion of this AQCR. East St. Louis recorded the highest 3-hour average of 0.425 ppm.

### Ozone

Only three of the seven sites operating in the Illinois portion of this AQCR recorded excursions of the 0.12 ppm Federal standard. This is a substantial change from 1980 when all sites recorded excursions with a total of 45 in the region compared to three in 1981. The number of hours above 0.08 ppm was also less at all sites in 1981. The greatest number of hours above 0.08 ppm was recorded at Edwardsville with 92 in 1981, substantially less than the 310 recorded in 1980. The highest hourly value in the Illinois portion of this AQCR was 0.128 ppm recorded at Waterloo. Ozone levels in 1981 were well below those observed in 1980 in the Metro-East area, with less days above 0.12 ppm, less hours above 0.08 ppm and lower peak values.

## Carbon Monoxide

Of the three sites operating in the Illinois portion of this AQCR Granite City is the only one to record an excursion of the 8-hour primary standard of 9 ppm with a value of 10.6 ppm. No excursions of the 1-hour primary standard of 35 ppm were recorded in 1981. The highet 1-hour value was 19.9 ppm recorded at Granite City.

## Nitrogen Dioxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

## ST. LOUIS METRO-EAST

### TOTAL SUSPENDED PARTICULATES
### ANNUAL GEOMETRIC MEAN
(MICROGRAMS PER CUBIC METER)

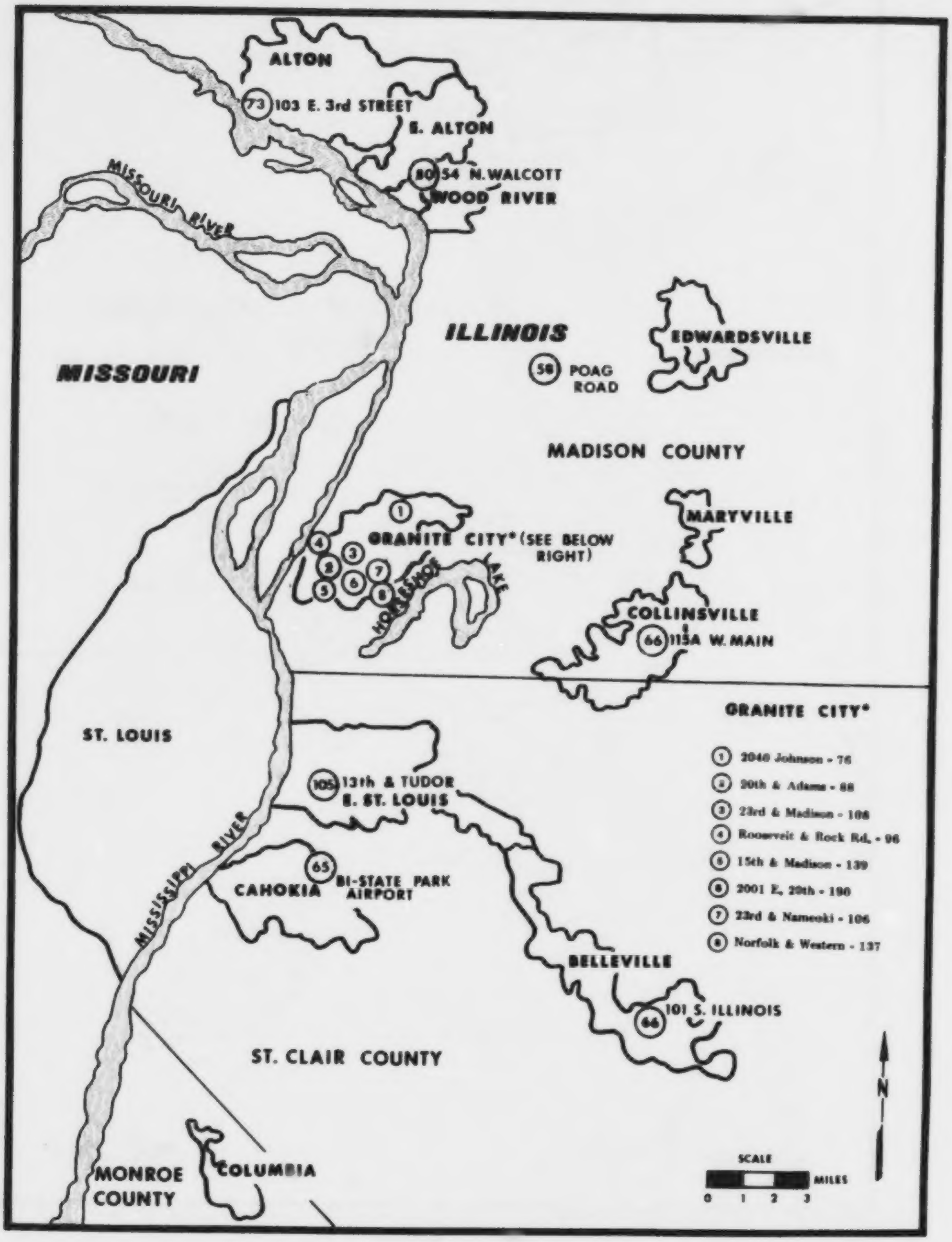

ALTON
73 103 E. 3rd STREET
E. ALTON
80 54 N. WALCOTT
WOOD RIVER
MISSOURI RIVER
ILLINOIS
EDWARDSVILLE
58 POAG ROAD
MISSOURI
MADISON COUNTY
MARYVILLE
1 2 3 4 5 6 7 8
GRANITE CITY* (SEE BELOW RIGHT)
HORSESHOE LAKE
COLLINSVILLE
66 115A W. MAIN
ST. LOUIS
105 13th & TUDOR
E. ST. LOUIS
MISSISSIPPI RIVER
65 BI-STATE PARK AIRPORT
CAHOKIA
BELLEVILLE
66 101 S. ILLINOIS
ST. CLAIR COUNTY
MONROE COUNTY
COLUMBIA
GRANITE CITY*
① 2040 Johnson - 76
② 20th & Adams - 88
③ 23rd & Madison - 108
④ Roosevelt & Rock Rd. - 96
⑤ 15th & Madison - 139
⑥ 2001 E. 20th - 190
⑦ 23rd & Nameoki - 106
⑧ Norfolk & Western - 137
SCALE
MILES
0 1 2 3
N

FIGURE 5

# ST. LOUIS METRO-EAST
## SULFUR DIOXIDE
## ANNUAL ARITHMETIC MEAN
(PARTS PER MILLION)

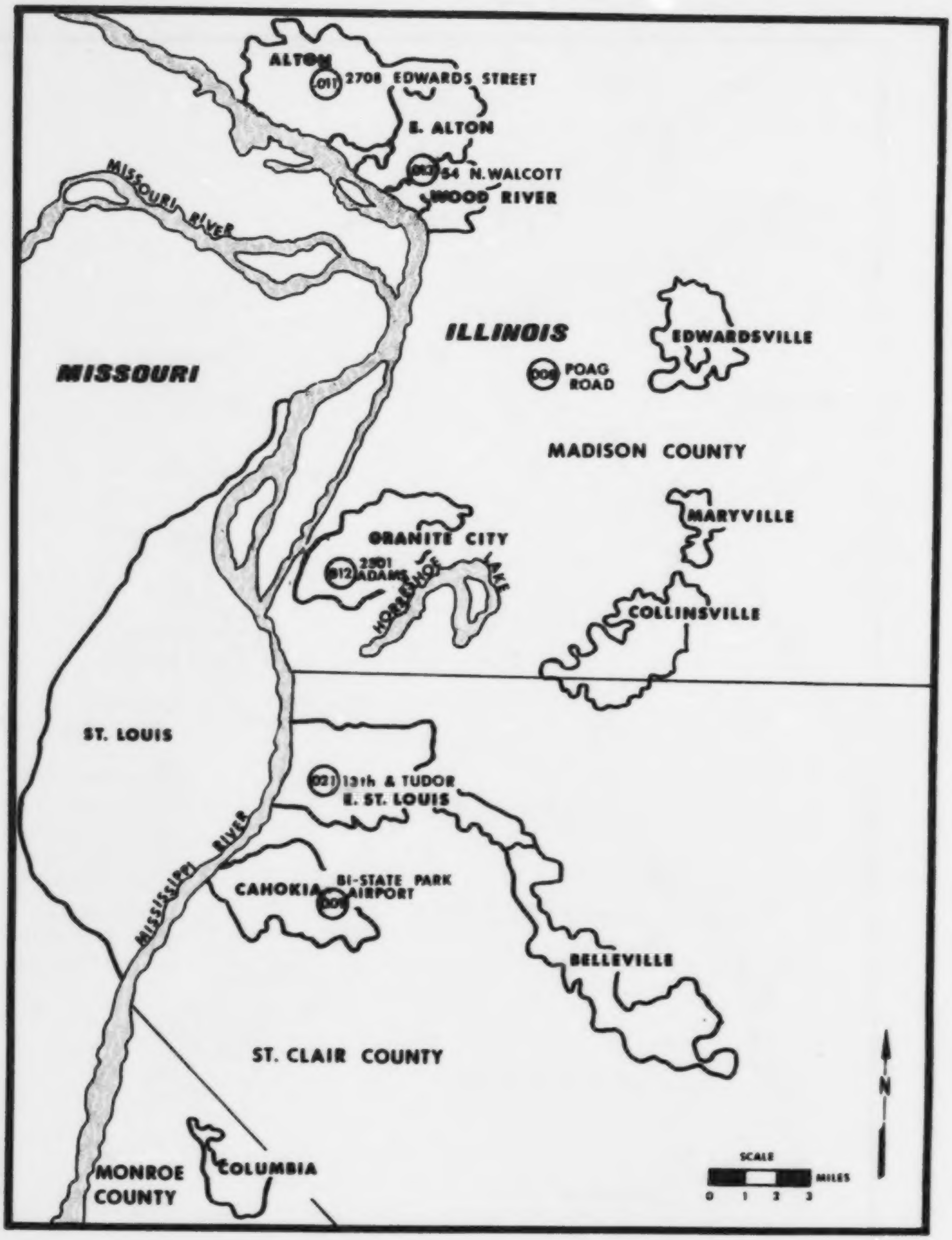

ALTON
011 2708 EDWARDS STREET
E. ALTON
54 N. WALCOTT
WOOD RIVER
MISSOURI RIVER
ILLINOIS
EDWARDSVILLE
MISSOURI
008 POAG ROAD
MADISON COUNTY
MARYVILLE
GRANITE CITY
012 2501 ADAMS
HORSESHOE LAKE
COLLINSVILLE
ST. LOUIS
021 13th & TUDOR
E. ST. LOUIS
MISSISSIPPI RIVER
CAHOKIA
BI-STATE PARK AIRPORT
BELLEVILLE
ST. CLAIR COUNTY
N
SCALE
MILES
0 1 2 3
MONROE COUNTY
COLUMBIA

FIGURE 6

# 1981
# TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M3 | >260 UG/M3 | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| MADISON COUNTY | | | | | | | | | | |
| Alton | 103 E. 3rd St. | 58 | 2 | 0 | 172 | 157 | 144 | 125 | 73 | 1.6 |
| Collinsville | 115A W. Main | 58 | 1 | 0 | 221 | 123 | 101 | 98 | 66 | 1.4 |
| Edwardsville | Poag Rd. | 53 | 0 | 0 | 137 | 125 | 112 | 95 | 58 | 1.5 |
| Granite City | 23rd & Madison | 61 | 12 | 0 | 251 | 215 | 205 | 204 | 108 | 1.5 |
| Granite City | 3201 E. 23rd | 19 | 1 | 0 | 161 | 133 | 131 | 104 | + | |
| Granite City | 2001 E. 20th | 60 | 46 | 13 | 391 | 341 | 334 | 329 | 190 | 1.5 |
| Granite City | 15th & Madison | 61 | 26 | 3 | 357 | 298 | 261 | 241 | 139 | 1.5 |
| Granite City | Roosevelt & Rock Rd. | 58 | 9 | 0 | 231 | 173 | 172 | 166 | 96 | 1.5 |
| Granite City | Norfolk & Western | 46 | 17 | 4 | 889 | 534 | 369 | 356 | 137 | 1.8 |
| Granite City | 2040 Johnson Ave. | 59 | 1 | 1 | 265 | 145 | 125 | 121 | 76 | 1.4 |
| Granite City | 23rd & Nameoki | 56 | 11 | 1 | 288 | 219 | 201 | 176 | 106 | 1.5 |
| Granite City | 20th & Adams | 55 | 5 | 0 | 244 | 191 | 177 | 167 | 88 | 1.5 |
| Wood River | 54 N. Walcott | 54 | 3 | 1 | 314 | 191 | 185 | 146 | 80 | 1.6 |
| MONROE COUNTY | | | | | | | | | | |
| Columbia | 208 S. Rapp | 37 | 1 | 0 | 184 | 149 | 84 | 81 | + | |
| Waterloo | U.S.D.A. Building | 61 | 1 | 0 | 200 | 108 | 98 | 94 | 56 | 1.5 |
| ST. CLAIR COUNTY | | | | | | | | | | |
| Belleville | 101 S. Illinois | 61 | 1 | 0 | 180 | 110 | 100 | 100 | 66 | 1.4 |
| Cahokia | 1201 St. Clement | 60 | 1 | 0 | 215 | 122 | 109 | 105 | 65 | 1.5 |
| East St. Louis | 13th & Tudor | 60 | 10 | 0 | 237 | 231 | 207 | 197 | 105 | 1.5 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

## 1981
## SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| MADISON COUNTY | | | | | | | | |
| Alton | 103 E. 3rd St. | 78 | 84 | 78 | 76 | 82 | 83 | 73 |
| Collinsville | 115A W. Main | 68 | 76 | 75 | 74 | 73 | 70 | 66 |
| Edwardsville | Poag Rd. | - | - | - | - | 60 | 60 | 58 |
| Granite City | 23rd & Madison | 105 | 123 | 112 | 114 | 118 | 113 | 108 |
| Granite City | 3201 E. 23rd | 68 | 83 | 81 | 74 | 87 | 84 | + |
| Granite City | 2001 E. 20th | 158 | 205 | 186 | 176 | 215 | 170 | 190 |
| Granite City | 15th & Madison | 138 | 155 | 131 | 152 | 159 | 145 | 139 |
| Granite City | Roosevelt & Rock Rd. | 97 | 111 | 107 | 99 | 120 | 112 | 96 |
| Granite City | Norfolk & Western | + | 139 | 133 | + | 165 | 126 | 137 |
| Granite City | 2040 Johnson Ave. | - | + | 84 | 86 | 88 | 81 | 76 |
| Granite City | 23rd & Nameoki | - | - | 112 | 115 | 119 | 112 | 106 |
| Granite City | 20th & Adams | - | - | + | + | 115 | 104 | 88 |
| Wood River | 54 N. Walcott | 81 | 82 | 95 | 85 | 91 | 91 | 80 |
| MONROE COUNTY | | | | | | | | |
| Columbia | 208 S. Rapp | 47 | 65 | 72 | + | + | 66 | + |
| Waterloo | U.S.D.A. Building | - | - | - | - | + | 64 | 56 |
| ST. CLAIR COUNTY | | | | | | | | |
| Belleville | 101 S. Illinois | 63 | 77 | + | 72 | 68 | 77 | 66 |
| Cahokia | 1201 St. Clement | - | - | - | - | 66 | 71 | 65 |
| East St. Louis | 13th & Tudor | - | - | - | - | 120 | 108 | 105 |

## SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | | HIGHEST SAMPLES (PPM) | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3-HR. AVG. | | 24-HR. AVG. | | | |
| | | 1 HR | 24 H | 3 - H AVGS >.5 | 24-H AVGS >.14 | 1st | 2nd | 1st | 2nd | ARITH. MEAN | STD. GEO. DEVIATION |
| MADISON COUNTY | | | | | | | | | | | |
| Alton | 2708 Edwards | 8164 | | 0 | 0 | .164 | .137 | .064 | .060 | .011 | 3.39 |
| Edwardsville | Poag Road | 8044 | | 0 | 0 | .089 | .082 | .046 | .039 | .008 | 3.03 |
| Granite City | 2301 Adams | 7139 | | 0 | 0 | .137 | .106 | .042 | .042 | .012 | 3.02 |
| Wood River | 54 N. Walcott | 7979 | | 0 | 0 | .217 | .215 | .122 | .088 | .013 | 3.54 |
| ST. CLAIR COUNTY | | | | | | | | | | | |
| Cahokia | 1201 St. Clement | 7439 | | 0 | 0 | .170 | .112 | .059 | .047 | .009 | 3.16 |
| East St. Louis | 13th & Tudor | 8138 | | 0 | 1 | .425 | .357 | .146 | .129 | .021 | 3.49 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SHORT-TERM TRENDS FOR SULFUR DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|---|---|---|
| MADISON COUNTY | | | | | | | | |
| Alton | 2708 Edwards | - | - | .019 | .017 | .015 | .015 | .011 |
| Edwardsville | Poag Rd. | - | - | - | - | .014 | .011 | .008 |
| Granite City | 2301 Adams | .020 | .020 | .023 | .018 | .015 | + | .012 |
| Wood River | 54 N. Walcott | .032 | .028 | .025 | .023 | .020 | .014 | .013 |
| ST. CLAIR COUNTY | | | | | | | | |
| Cahokia | 1201 St. Clement | - | - | - | - | .010 | .011 | .009 |
| East St. Louis | 13th & Tudor | - | - | - | - | .022 | .024 | .021 |

# OZONE
(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST SAMPLES (PPM) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL 1st | ANNUAL 2nd |
| MADISON COUNTY | | | | | | | | | | | | | |
| Alton | 2708 Edwards | 6651 | 63 | 1 | .082 | .124 | .098 | .107 | .115 | .127 | .052 | .127 | .124 |
| Edwardsville | Poag Rd. | 6554 | 92 | 0 | .091 | .086 | .104 | .105 | .106 | .113 | .065 | .113 | .106 |
| Granite City | 2301 Adams | 7879 | 17 | 0 | .056 | .072 | .094 | .089 | .115 | .069 | .048 | .115 | .094 |
| Maryville | Rte. 159 South | 6279 | 75 | 0 | .086 | .087 | .103 | .123 | .117 | .087 | .057 | .123 | .117 |
| Wood River | 54 N. Walcott | 8275 | 73 | 1 | .058 | .110 | .094 | .117 | .122 | .126 | .052 | .126 | .122 |
| MONROE COUNTY | | | | | | | | | | | | | |
| Waterloo | U.S.D.A. Building | 5974 | 27 | 1 | .072 | .099 | .070 | .128 | .094 | .080 | .068 | .128 | .099 |
| ST. CLAIR COUNTY | | | | | | | | | | | | | |
| East St. Louis | 13th & Tudor | 6405 | 26 | 0 | .072 | .072 | .082 | .105 | .090 | .073 | .055 | .105 | .103 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# CARBON MONOXIDE
(PARTS PER MILLION)

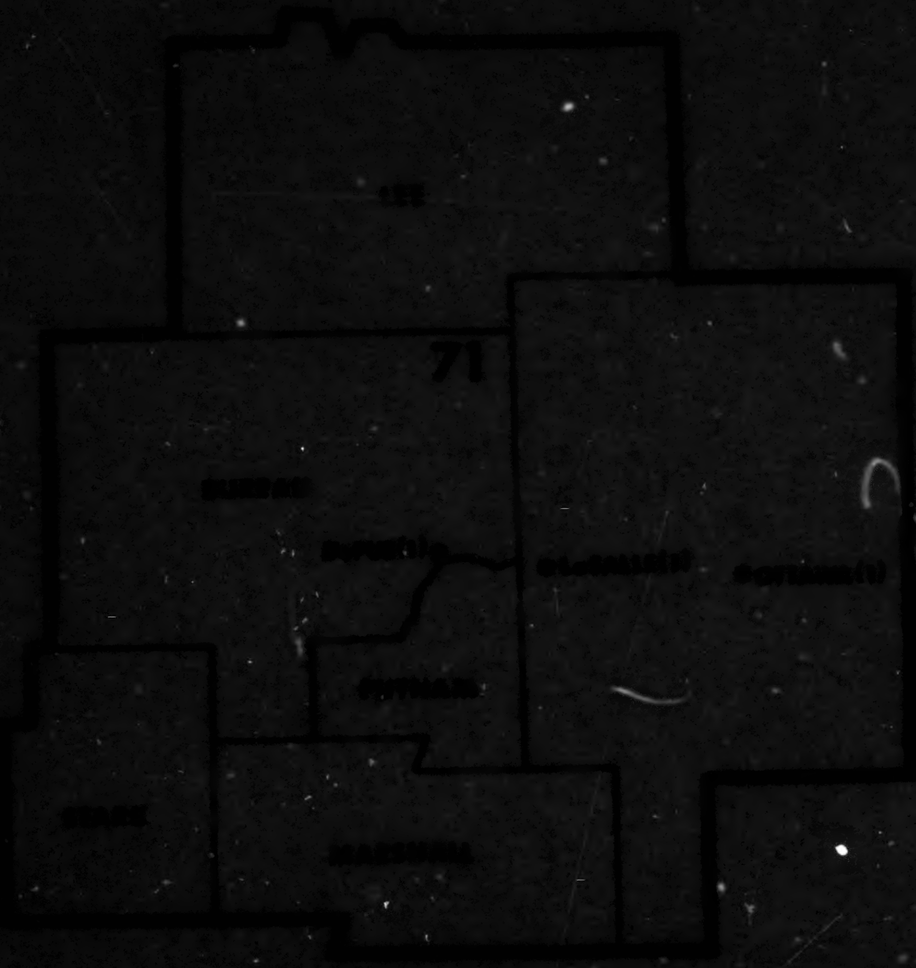
| STATION | ADDRESS | NO OF SAMPLES | NUMBER OF AVERAGES | | HIGHEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 - HR >35 PPM | 8 - HR >9 PPM | 1-HR AVERAGE | | | 8-HR AVERAGE | | |
| | | | | | 1st | 2nd | 3rd | 1st | 2nd | 3rd |
| MADISON COUNTY | | | | | | | | | | |
| Alton | 1854 E. Broadway | 5882 | 0 | 0 | 10.5 | 10.5 | 9.9 | 6.7 | 6.6 | 6.5 |
| Granite City | 2001 Edison | 7876 | 0 | 1 | 19.9 | 16.4 | 15.5 | 10.6 | 8.2 | 7.6 |
| ST. CLAIR COUNTY | | | | | | | | | | |
| East St. Louis | 13th & Tudor | 8088 | 0 | 0 | 13.1 | 12.9 | 10.9 | 8.1 | 6.5 | 6.2 |

# LEAD
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m$^3$) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| MADISON COUNTY | | | | | | | |
| Alton | 103 E. 3rd St. | 0 | 0.21 | 0.32 | 0.46 | 0.36 | 0.35 |
| Collinsville | 115A W. Main | 0 | 0.26 | 0.18 | 0.24 | 0.26 | 0.23 |
| Edwardsville | Poag Rd. | 0 | 0.22 | 0.15 | 0.23 | 0.26 | 0.21 |
| Granite City | 23rd & Madison | 0 | 0.43 | 0.31 | 0.56 | 0.42 | 0.43 |
| Granite City | 3201 E. 23rd | 0 | + | + | 0.33 | + | + |
| Granite City | 2001 E. 20th | 0 | 0.48 | 0.46 | 0.58 | 0.55 | 0.51 |
| Granite City | 15th & Madison | 3 | 2.07 | 1.03 | 1.77 | 7.27 | 3.03 |
| Granite City | Roosevelt & Rock Rd. | 0 | 0.47 | 0.85 | 1.13 | 0.87 | 0.83 |
| Granite City | Norfolk & Western | 0 | 0.26 | 0.21 | 0.35 | 0.39 | 0.31 |
| Granite City | 2040 Johnson Ave. | 0 | 0.41 | 0.25 | 0.32 | 0.39 | 0.34 |
| Granite City | 23rd & Nameoki | 0 | 0.56 | 0.33 | 0.46 | 0.53 | 0.47 |
| Granite City | 20th & Adams | 1 | 0.45 | 1.58 | 0.54 | 0.52 | 0.68 |
| Wood River | 54 N. Walcott | 0 | 0.30 | 0.33 | 0.38 | 0.37 | 0.34 |
| MONROE COUNTY | | | | | | | |
| Columbia | 208 S. Rapp | 0 | 0.24 | + | 0.21 | + | + |
| Waterloo | U.S.D.A. Building | 0 | 0.16 | 0.08 | 0.14 | 0.10 | 0.12 |
| ST. CLAIR COUNTY | | | | | | | |
| Belleville | 101 S. Illinois | 0 | 0.25 | 0.15 | 0.23 | 0.35 | 0.25 |
| Cahokia | 1201 St. Clement | 0 | 0.24 | 0.12 | 0.24 | 0.28 | 0.22 |
| East St. Louis | 13th & Tudor | 0 | 0.50 | 0.47 | 0.54 | 0.62 | 0.53 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

# AIR QUALITY CONTROL REGION 71
# NORTH CENTRAL ILLINOIS INTRASTATE


LEE
71
BUREAU
PERU(1)●
●LaSALLE(1)
●OTTAWA(1)
PUTNAM
STARK
MARSHALL

(The number of monitoring sites in each city is shown in parentheses following the city name.)

## NORTH CENTRAL ILLINOIS INTRASTATE
## AIR QUALITY CONTROL REGION (AQCR) 71

### Total Suspended Particulates

Three sites recorded valid annual averages in this AQCR in 1981. No excursions of the annual primary standard of 75 ug/m$^3$ were recorded with the highest annual average of 63 ug/m$^3$ being recorded at Oglesby. No excursions of the 24-hour primary standard of 260 ug/m$^3$ were recorded and only two excursions of the 24-hour secondary standard of 150 ug/m$^3$ were recorded. The highest 24-hour value was 192 ug/m$^3$ recorded at Oglesby.

### Lead

Both sites reporting lead data were well below the quarterly standard of 1.5 ug/m$^3$. The highest quarterly average was 0.13 ug/m$^3$, recorded at both sites in the 4th quarter.

### Sulfur Dioxide

LaSalle recorded an annual mean of 0.004 ppm, well below the primary annual standard of 0.03 ppm. The maximum 3-hour and 24-hour averages were .072 ppm and .028 ppm respectively, also well below the appropriate standards. Data collected at industrial monitoring sites is given in Section 6.0.

### Ozone

LaSalle was the only site outside of the Chicago metropolitan area to record more than one day above 0.12 ppm. The ozone levels on the two excursion days was heavily impacted by winds blowing from the direction of the Chicago urbanized area. The highest hourly value was 0.128 ppm. A total of 31 hours were recorded with ozone concentrations greater than 0.08 ppm, less than the 52 hours above in 1980.

### Nitrogen Dioxide, Carbon Monoxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in this AQCR.

# 1981
# TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M³ | >260 UG/M³ | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| BUREAU COUNTY | | | | | | | | | | |
| DePue | 1401 Marquette | 55 | 1 | 0 | 182 | 144 | 103 | 97 | 56 | 1.5 |
| LA SALLE COUNTY | | | | | | | | | | |
| Oglesby | 110 W. 2nd St. | 54 | 1 | 0 | 192 | 149 | 135 | 133 | 63 | 1.6 |
| Ottawa | 211 E. Main | 58 | 0 | 0 | 114 | 100 | 96 | 92 | 54 | 1.4 |

# SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M³) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| BUREAU COUNTY | | | | | | | | |
| DePue | 1401 Marquette | 58 | 63 | 58 | 58 | 60 | 59 | 56 |
| LA SALLE COUNTY | | | | | | | | |
| Oglesby | 110 W. 2nd St. | - | - | + | 59 | 60 | 53 | 63 |
| Ottawa | 211 E. Main | 55 | 64 | 54 | 58 | 64 | 55 | 54 |

# SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | | HIGHEST SAMPLES (PPM) | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3-HR. AVG. | | 24-HR. AVG. | | | |
| | | 1 HR | 24 HR | 3-HR AVGS >.5 | 24-HR AVGS >.14 | 1st | 2nd | 1st | 2nd | ARITH. MEAN | STD. GEO. DEVIATION |
| LA SALLE COUNTY | | | | | | | | | | | |
| LaSalle | 541 Chartres | 8232 | | 0 | 0 | .072 | .064 | .028 | .026 | .004 | 2.55 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SHORT-TERM TRENDS FOR SULFUR DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| LASALLE COUNTY | | | | | | | | |
| LaSalle | 541 Chartres | .014 | .010 | .009 | .007 | .006 | .005 | .004 |

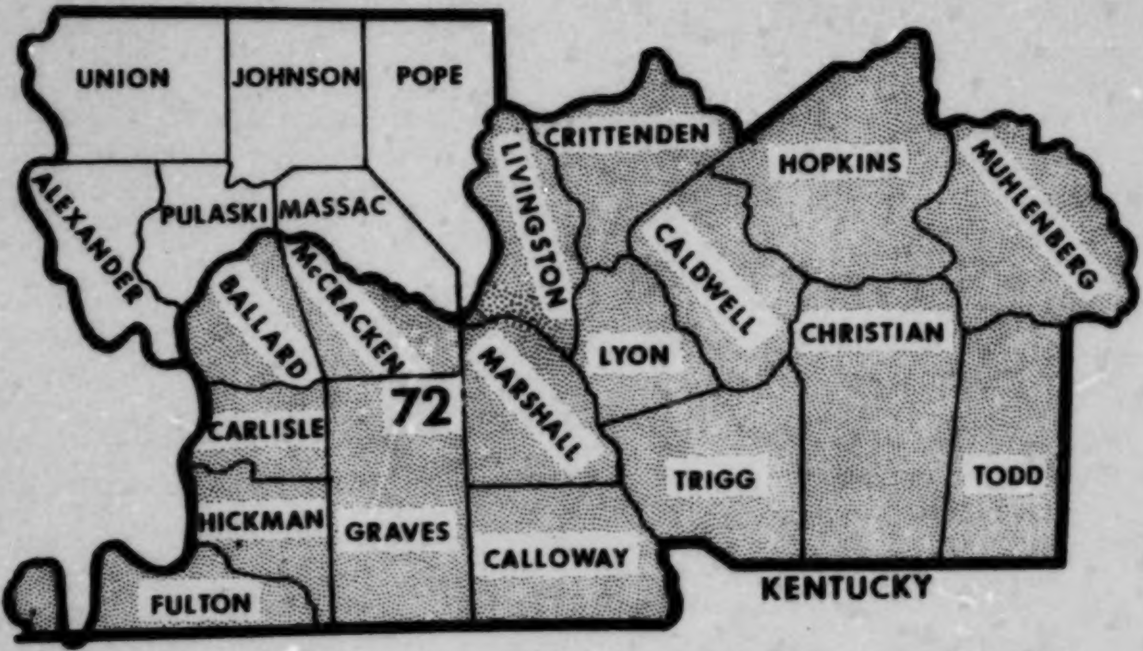
## OZONE
(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST SAMPLES (PPM) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL 1st | ANNUAL 2nd |
| LA SALLE COUNTY | | | | | | | | | | | | | |
| LaSalle | 541 Chartres | 7492 | 31 | 2 | .072 | .082 | .090 | .085 | .128 | .081 | .052 | .128 | .127 |

## LEAD
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m3 | QUARTERLY AVERAGES (ug/m3) | | | | ANNUAL MEAN (ug/m3) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| BUREAU COUNTY | | | | | | | |
| DePue | 1401 Marquette | 0 | 0.09 | 0.09 | 0.11 | 0.13 | 0.11 |
| LA SALLE COUNTY | | | | | | | |
| Ottawa | 211 E. Main | 0 | 0.08 | 0.07 | 0.12 | 0.13 | 0.10 |

# AIR QUALITY CONTROL REGION 72
## PADUCAH-CAIRO INTERSTATE
## (KENTUCKY-ILLINOIS)


UNION
JOHNSON
POPE
ALEXANDER
PULASKI
MASSAC
LIVINGSTON
CRITTENDEN
HOPKINS
MUHLENBERG
BALLARD
McCRACKEN
CALDWELL
LYON
MARSHALL
CHRISTIAN
72
CARLISLE
TRIGG
TODD
HICKMAN
GRAVES
CALLOWAY
FULTON
KENTUCKY

Data for the Kentucky portion of this control region can be obtained from:
Kentucky Environmental Protection Agency,
Capitol Plaza Tower,
Frankfort, Kentucky 40601
(502) 564-3382

(The number of sampling sites in each city is shown in parenthesis following the city name.)

# PADUCAH-CAIRO INTERSTATE (KENTUCKY-ILLINOIS)
# AIR QUALITY CONTROL REGION (AQCR) 72

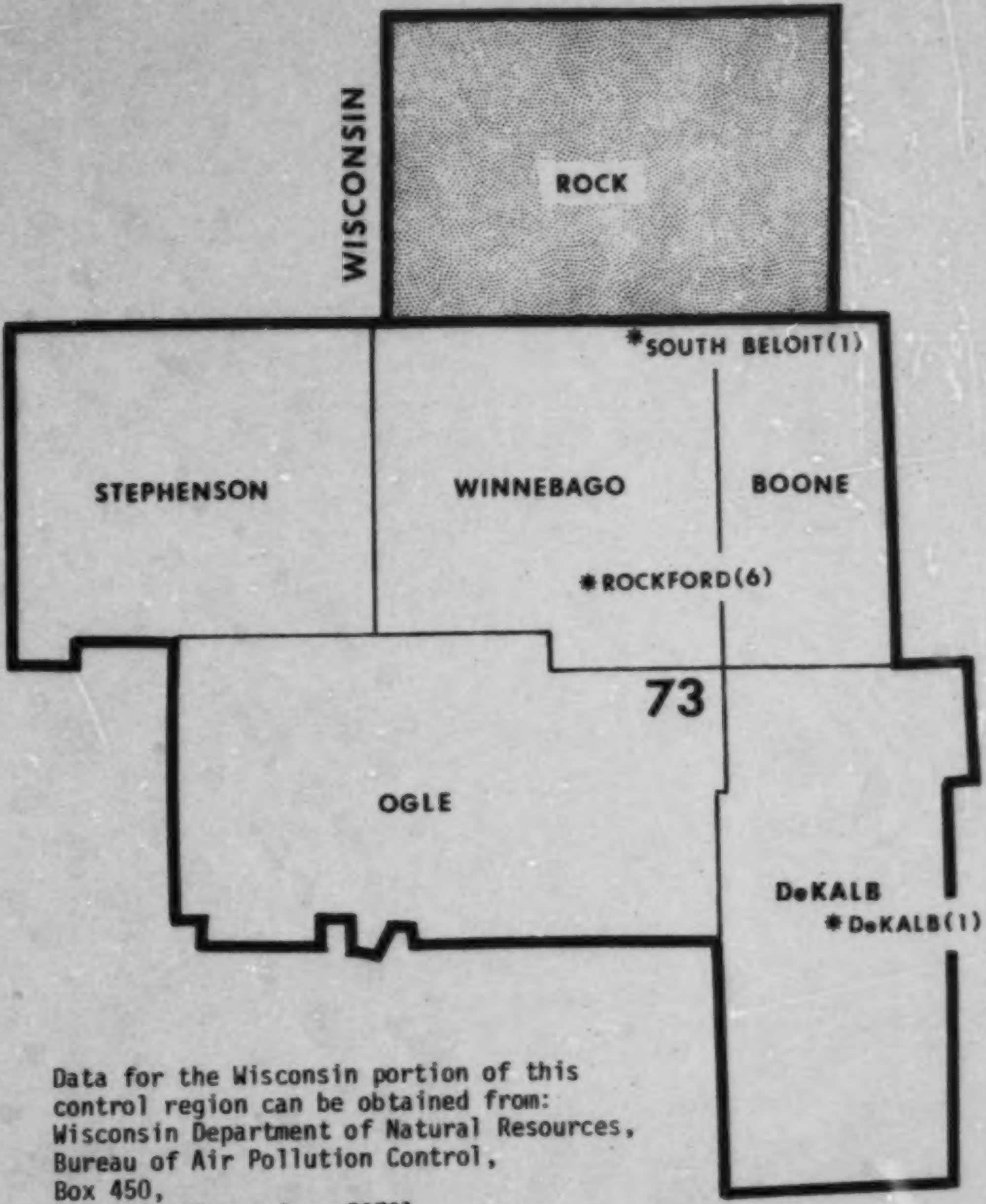
## Total Suspended Particulates, Sulfur Dioxide

Data for these pollutants collected at industrial sites (see Section 6.0).

## Ozone, Nitrogen Dioxide, Carbon Monoxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

# AIR QUALITY CONTROL REGION 73
# ROCKFORD-JANESVILLE-BELOIT INTERSTATE
# (ILLINOIS-WISCONSIN)


WISCONSIN
ROCK
*SOUTH BELOIT(1)
STEPHENSON
WINNEBAGO
BOONE
*ROCKFORD(6)
73
OGLE
DeKALB
*DeKALB(1)

Data for the Wisconsin portion of this control region can be obtained from:

Wisconsin Department of Natural Resources,
Bureau of Air Pollution Control,
Box 450,
Madison, Wisconsin 53701
(608) 266-7718

(The number of sampling sites in each city is shown in parenthesis following the city name.)

## ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILLINOIS-WISCONSIN) AIR QUALITY CONTROL REGION (AQCR) 73

### Total Suspended Particulates

Three sites in the Illinois portion of this AQCR received sufficient data for valid annual averages. All of these sites recorded annual averages below the annual secondary standard of 60 ug/m$^3$. The highest annual average was 57 ug/m$^3$ in South Beloit. This site was the only one to record an excursion of the 24-hour secondary standard of 150 ug/m$^3$ with a value of 169 ug/m$^3$.

### Lead

All of the sites in the Illinois portion of this AQCR were well below the quarterly standard of 1.5 ug/m$^3$. The highest quarterly average of 0.27 ug/m$^3$ was recorded in Rockford at 333 15th Street.

### Sulfur Dioxide

The site in Rockford recorded an annual average of 0.004 ppm, well below the annual primary standard of 0.03 ppm. The highest 3-hour average was 0.060 ppm and the highest 24-hour average was 0.033 ppm. These values are both well below the appropriate standards.

### Ozone

Two sites monitored for ozone in the Illinois portion at this AQCR with neither recording concentrations above 0.12 ppm. Both sites recorded nine or more hours above 0.08 ppm. The highest hourly average was 0.094 ppm recorded at 1405 Maple in Rockford.

### Carbon Monoxide

The Rockford site recorded one excursion of the 8-hour primary standard of 9 ppm with a maximum value of 9.5 ppm. The maximum 1-hour average was 21.0 ppm, below the 1-hour standard of 35 ppm.

### Nitrogen Dioxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

# 1981
# TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M³ | >260 UG/M³ | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| DE KALB COUNTY | | | | | | | | | | |
| DeKalb | 650 N. 1st St. | 54 | 0 | 0 | 129 | 125 | 109 | 98 | 53 | 1.5 |
| WINNEBAGO COUNTY | | | | | | | | | | |
| Rockford | 204 S. First | 44 | 0 | 0 | 101 | 93 | 85 | 80 | + | |
| Rockford | 333 15th St. | 52 | 0 | 0 | 133 | 112 | 104 | 98 | 52 | 1.6 |
| South Beloit | Wheeler Ave. at Washington | 54 | 1 | 0 | 169 | 134 | 105 | 95 | 57 | 1.5 |

# SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M³) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| DE KALB COUNTY | | | | | | | | |
| DeKalb | 650 N. 1st St. | - | - | - | - | + | + | 53 |
| WINNEBAGO COUNTY | | | | | | | | |
| Rockford | 204 S. First | - | - | - | - | - | + | + |
| Rockford | 333 15th St. | - | - | - | - | - | - | 52 |
| South Beloit | Wheeler Ave. at Washington | - | - | - | 55 | 62 | 53 | 57 |

# SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | | HIGHEST SAMPLES (PPM) | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3-HR. AVG. | | 24-HR. AVG. | | | |
| | | 1 HR | 24 HR | 3 - HR AVGS >.5 | 24-HR AVGS >.14 | 1st | 2nd | 1st | 2nd | ARITH. MEAN | STD. GEO. DEVIATION |
| WINNEBAGO COUNTY | | | | | | | | | | | |
| Rockford | 1528 18th Ave. | 8266 | | 0 | 0 | .060 | .045 | .033 | .025 | .004 | 2.43 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SHORT-TERM TRENDS FOR SULFUR DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| WINNEBAGO COUNTY | | | | | | | | |
| Rockford | 1528 18th Ave. | .014 | .017 | .011 | .009 | + | .005 | .004 |

## OZONE
(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST SAMPLES (PPM) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL |
| | | | | | | | | | | | | 1st | 2nd |
| WINNEBAGO COUNTY | | | | | | | | | | | | | |
| Rockford | 1500 Post | 8126 | 12 | 0 | .079 | .068 | .075 | .086 | .087 | .063 | .057 | .087 | .086 |
| Rockford | 1405 Maple | 8230 | 9 | 0 | .079 | .072 | .092 | .094 | .075 | .075 | .052 | .094 | .092 |

## CARBON MONOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NO OF SAMPLES | NUMBER OF AVERAGES | | HIGHEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 - HR >35 PPM | 8 - HR >9 PPM | 1-HR AVERAGE | | | 8-HR AVERAGE | | |
| | | | | | 1st | 2nd | 3rd | 1st | 2nd | 3rd |
| WINNEBAGO COUNTY | | | | | | | | | | |
| Rockford | 425 E. State | 8211 | 0 | 1 | 21.0 | 17.3 | 17.1 | 9.5 | 8.9 | 8.7 |

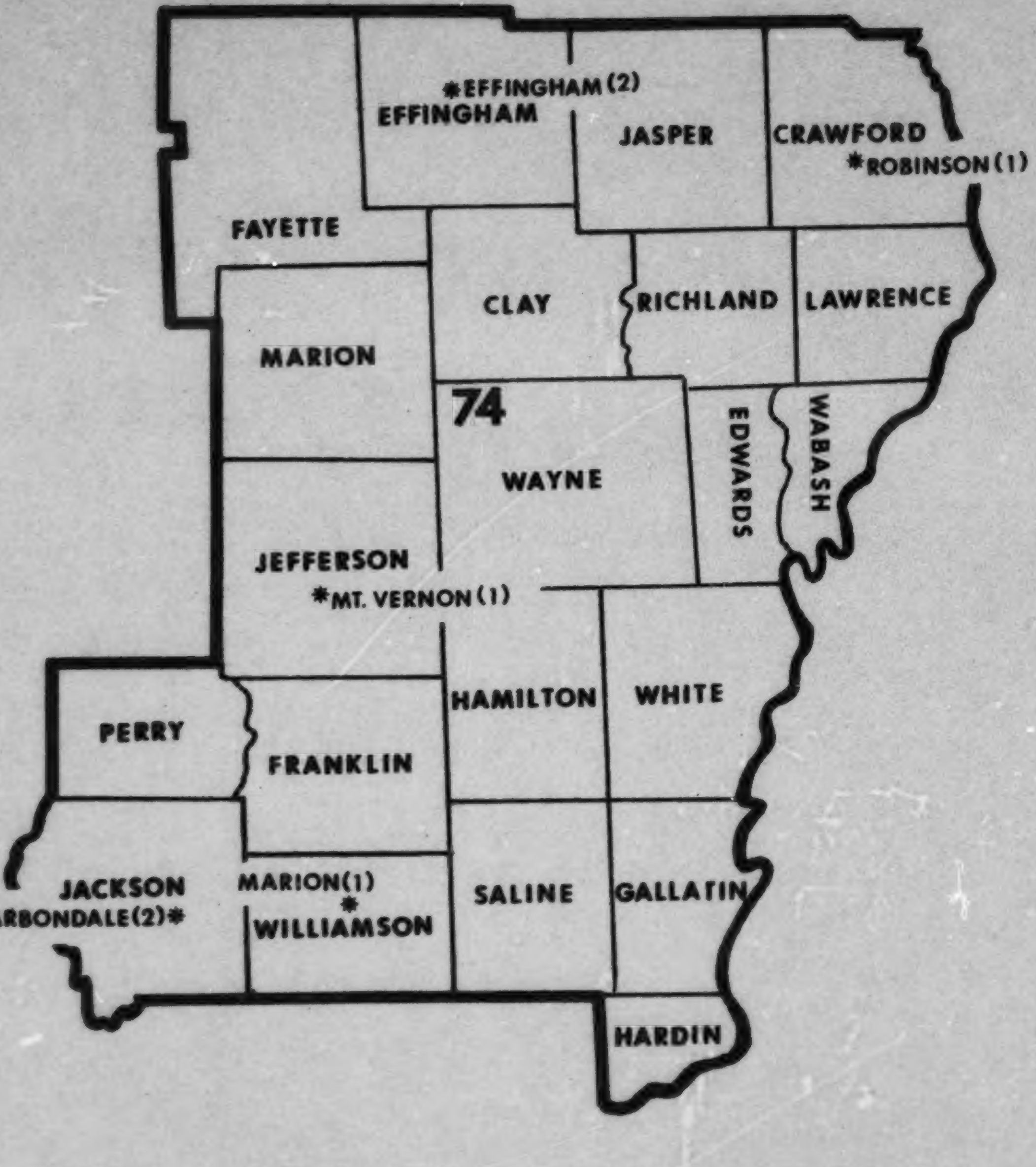
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# LEAD

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m$^3$) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| DE KALB COUNTY | | | | | | | |
| DeKalb | 650 N. 1st St. | 0 | 0.10 | 0.10 | 0.15 | 0.20 | 0.14 |
| WINNEBAGO COUNTY | | | | | | | |
| Rockford | 204 S. First | 0 | 0.18 | + | 0.23 | 0.25 | + |
| Rockford | 333 15th St. | 0 | 0.10 | 0.14 | 0.23 | 0.27 | 0.18 |
| South Beloit | Wheeler Ave. at Washington | 0 | 0.10 | 0.09 | 0.12 | 0.18 | 0.12 |

## AIR QUALITY CONTROL REGION 74
## SOUTHEAST ILLINOIS INTRASTATE


*EFFINGHAM (2)
EFFINGHAM
JASPER
CRAWFORD
*ROBINSON (1)
FAYETTE
CLAY
RICHLAND
LAWRENCE
MARION
74
WAYNE
EDWARDS
WABASH
JEFFERSON
*MT. VERNON (1)
HAMILTON
WHITE
PERRY
FRANKLIN
JACKSON
CARBONDALE(2)*
MARION(1)
*
WILLIAMSON
SALINE
GALLATIN
HARDIN

(The number of sampling sites in each city is shown in parenthesis following the city name.)

## SOUTHEAST ILLINOIS INTRASTATE
## AIR QUALITY CONTROL REGION (AQCR) 74

### Total Suspended Particulates

Two of the four sites in this AQCR received sufficient data for valid annual averages. Neither site exceeded the annual primary standard of 75 ug/$m^3$. The highest annual average was 71 ug/$m^3$ at 306 W. Main Street in Carbondale. The only sample to exceed the 24-hour secondary standard of 150 ug/$m^3$ was 166 ug/$m^3$ recorded at 306 W. Main Street in Carbondale.

### Lead

The highest quarterly average was 0.35 ug/$m^3$ recorded at 306 West Main Street in Carbondale. This value is well below the quarterly standard of 1.5 ug/$m^3$.

### Sulfur Dioxide

Marion, the only site in this AQCR, recorded an annual average of 0.007 ppm well below the annual primary standard of 0.03 ppm. The highest 3-hour average was 0.092 ppm and the highest 24-hour average was 0.044, both well below the applicable standards.

### Ozone

Three sites operated for at least a part of the 1981 ozone season. None of these sites recorded an hourly ozone concentration greater than 0.12 ppm. The highest hourly average was 0.102 ppm at Effingham. Effingham recorded the most hours above 0.08 ppm with 26.

### Nitrogen Dioxide, Carbon Dioxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the AQCR.

# 1981
# TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M3 | >260 UG/M3 | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| **EFFINGHAM COUNTY** | | | | | | | | | | |
| Effingham | 1015 S. Willow | 27 | 0 | 0 | 104 | 95 | 95 | 95 | + | |
| **JACKSON COUNTY** | | | | | | | | | | |
| Carbondale | 306 N. Main St. | 46 | 1 | 0 | 166 | 115 | 113 | 102 | 71 | 1.4 |
| Carbondale | 300 N. Springer | 34 | 0 | 0 | 121 | 106 | 96 | 94 | + | |
| **JEFFERSON COUNTY** | | | | | | | | | | |
| Mt. Vernon | 601 N. 18th St. | 41 | 0 | 0 | 104 | 100 | 99 | 84 | 50 | 2.0 |

# SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| **EFFINGHAM COUNTY** | | | | | | | | |
| Effingham | 1015 S. Willow | 58 | 59 | 57 | + | 80 | + | + |
| **JACKSON COUNTY** | | | | | | | | |
| Carbondale | 306 W. Main St. | - | - | 77 | + | + | 77 | 71 |
| Carbondale | 300 N. Springer | - | - | - | - | - | - | + |
| **JEFFERSON COUNTY** | | | | | | | | |
| Mt. Vernon | 601 n. 18th St. | + | 58 | 59 | 60 | 53 | + | 50 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | | HIGHEST SAMPLES (PPM) | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 HR | 24 HR | 3 - HR AVGS >.5 | 24-HR AVGS >.14 | 3-HR. AVG. 1st | 3-HR. AVG. 2nd | 24-HR. AVG. 1st | 24-HR. AVG. 2nd | ARITH. MEAN | STD. GEO. DEVIATION |
| WILLIAMSON COUNTY | | | | | | | | | | | |
| Marion | 2209 W. Main | 7821 | | 0 | 0 | .092 | .082 | .044 | .036 | .007 | 2.87 |

## SHORT-TERM TRENDS FOR SULFUR DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| WILLIAMSON COUNTY | | | | | | | | |
| Marion | 2209 W. Main | + | .013 | .014 | .013 | .010 | .009 | .007 |

## OZONE
(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST SAMPLES (PPM) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL 1st | ANNUAL 2nd |
| CRAWFORD COUNTY | | | | | | | | | | | | | |
| Robinson | Lincoln Trail Col. | 2993 | 1 | 0 | .068 | .082 | .068 | NS | NS | NS | NS | .082 | .073 |
| EFFINGHAM COUNTY | | | | | | | | | | | | | |
| Effingham | Rte. 45 South | 3772 | 26 | 0 | NS | NS | NS | .102 | .086 | .083 | .071 | .102 | .087 |
| WILLIAMSON COUNTY | | | | | | | | | | | | | |
| Marion | 2209 W. Main | 7839 | 17 | 0 | .061 | .063 | .086 | .087 | .088 | .081 | .061 | .088 | .087 |

NS - No sample.

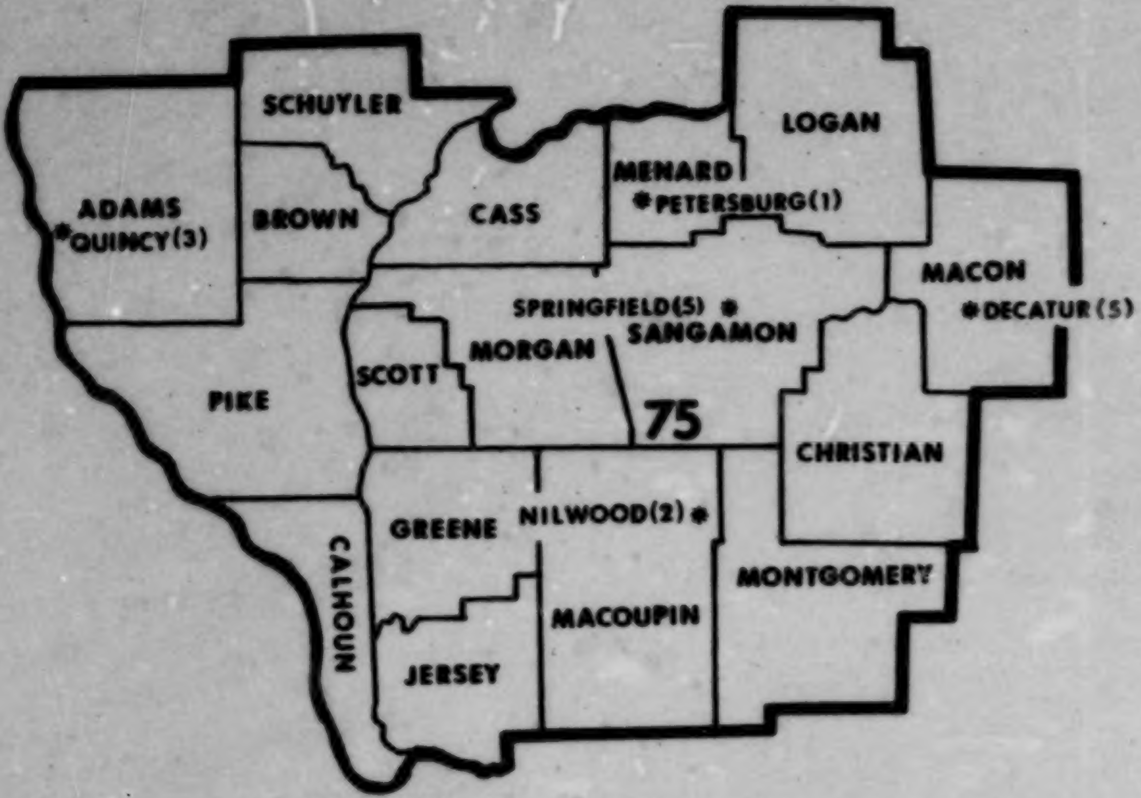
+ Did not meet minimum statistical selection criteria (See Section 4.1)

# 1981
# LEAD

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m$^3$) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| EFFINGHAM COUNTY | | | | | | | |
| Effingham | 1015 S. Willow | 0 | 0.14 | 0.06 | + | + | + |
| JACKSON COUNTY | | | | | | | |
| Carbondale | 306 W. Main St. | 0 | + | 0.20 | 0.26 | 0.35 | 0.27 |
| Carbondale | 300 N. Springer | 0 | + | 0.10 | 0.12 | + | + |
| JEFFERSON COUNTY | | | | | | | |
| Mt. Vernon | 601 N. 18th St. | 0 | 0.08 | + | 0.11 | 0.22 | + |

## AIR QUALITY CONTROL REGION 75
## WEST CENTRAL ILLINOIS INTRASTATE


SCHUYLER
LOGAN
MENARD
*PETERSBURG(1)
ADAMS
*QUINCY(3)
BROWN
CASS
MACON
*DECATUR(5)
SPRINGFIELD(5) *
SANGAMON
MORGAN
SCOTT
PIKE
75
CHRISTIAN
GREENE
NILWOOD(2) *
CALHOUN
MONTGOMERY
MACOUPIN
JERSEY

(The number of sampling sites in each city is shown in parenthesis following the city name.)

## WEST CENTRAL ILLINOIS INTRASTATE
## AIR QUALITY CONTROL REGION (AQCR) 75

### Total Suspended Particulates

Eight sites recorded sufficient data for valid annual averages in this AQCR. Two of these sites (both in Decatur) exceeded the primary annual standard of 75 ug/m$^3$ with the 2300 Geddes site recording the highest annual average of 97 ug/m$^3$. Values exceeding the 24-hour primary standard of 260 ug/m$^3$ were recorded in Decatur - 2300 Geddes and in Petersburg. With the exception of Springfield - 2200 Churchill Road, all sites in this AQCR recorded lower TSP levels in 1981 than in 1980. Data from industrial monitoring sites in this AQCR is given in Section 6.0.

### Lead

None of the sites in this AQCR recorded violations of the quarterly standard of 1.5 ug/m$^3$. The highest quarterly average of 0.32 ug/m$^3$ was recorded in Decatur at 600 East Garfield.

### Sulfur Dioxide

Springfield is the only site in the AQCR to record sufficient data for a valid annual average. This site had an annual average of 0.009 ppm well below the primary annual standard of 0.03 ppm. No violations of the 3-hour or 24-hour standards were recorded in this AQCR. The highest 3-hour and 24-hour values were recorded in Springfield and were 0.317 ppm and 0.107, respectively. Data for industrial monitoring sites in this AQCR are found in Section 6.0.

### Ozone

The Nilwood - IEPA trailer site recorded the only day with ozone levels above 0.12 ppm in this AQCR. The highest hourly concentration at Nilwood - IEPA trailer was 0.125 ppm. The Nilwood - Post Office site recorded the most hours above 0.08 ppm with 39.

### Carbon Monoxide

Springfield recorded three excursions of the 8-hour primary standard of 9 ppm with a maximum 8-hour average of 11.1 ppm. The highest 1-hour average was 23.1 ppm below the 1-hour standard of 35 ppm. The high 1-hour and 8-hour averages recorded in Springfield were the highest of any site in the State in 1981.

### Nitrogen Dioxide, Non-Methane Hydrocarbons

Data for these pollutants was not collected in this AQCR.

## 1981
## TOTAL SUSPENDED PARTICULATES

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M³ | >260 UG/M³ | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| ADAMS COUNTY | | | | | | | | | | |
| Quincy | 9th & Vermont | 49 | 1 | 0 | 163 | 99 | 99 | 96 | 58 | 1.4 |
| MACON COUNTY | | | | | | | | | | |
| Decatur | 2300 Geddes | 61 | 10 | 1 | 263 | 230 | 195 | 193 | 97 | 1.6 |
| Decatur | 600 E. Garfield | 60 | 1 | 0 | 153 | 143 | 140 | 138 | 67 | 1.6 |
| Decatur | 750 E. Lake Shore Dr. | 61 | 0 | 0 | 118 | 109 | 97 | 87 | 55 | 1.4 |
| Decatur | 1808 E. Locust | 59 | 4 | 0 | 210 | 178 | 172 | 162 | 77 | 1.6 |
| MENARD COUNTY | | | | | | | | | | |
| Petersburg | 7th & Jackson | 61 | 4 | 1 | 372 | 245 | 186 | 151 | 62 | 1.7 |
| SANGAMON COUNTY | | | | | | | | | | |
| Springfield | 2200 Churchill Rd. | 47 | 0 | 0 | 112 | 110 | 107 | 96 | 53 | 1.5 |
| Springfield | 2105 E. Cook St. | 53 | 1 | 0 | 152 | 116 | 115 | 110 | 61 | 1.5 |

## SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

| STATION | ADDRESS | ANNUAL MEAN (UG/M³) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| ADAMS COUNTY | | | | | | | | |
| Quincy | 9th & Vermont | 61 | 66 | 57 | 57 | + | 61 | 58 |
| MACON COUNTY | | | | | | | | |
| Decatur | 2300 Geddes | 105 | 122 | 97 | 109 | 103 | 112 | 97 |
| Decatur | 600 E. Garfield | 66 | 81 | 73 | 85 | 77 | 75 | 67 |
| Decatur | 750 E. Lake Shore Dr. | - | - | 67 | 58 | 60 | 61 | 55 |
| Decatur | 1808 E. Locust | - | - | - | - | - | 101 | 77 |
| MENARD COUNTY | | | | | | | | |
| Petersburg | 7th & Jackson | 57 | 65 | 58 | 64 | 67 | 68 | 62 |
| SANGAMON COUNTY | | | | | | | | |
| Springfield | 2200 Churchill Rd. | - | - | - | 55 | 53 | 46 | 53 |
| Springfield | 2105 E. Cook St. | - | - | - | - | - | + | 61 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981
# SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | | HIGHEST SAMPLES (PPM) | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 HR | 24 H | 3 - H AVGS >.5 | 24-HR AVGS >.14 | 3-HR. AVG. | | 24-HR. AVG. | | ARITH. MEAN | STD. GEO. DEVIATION |
| | | | | | | 1st | 2nd | 1st | 2nd | | |
| **ADAMS COUNTY** | | | | | | | | | | | |
| Quincy | 732 Hampshire | 5903 | | 0 | 0 | .207 | .203 | .079 | .051 | + | |
| **MACON COUNTY** | | | | | | | | | | | |
| Decatur | 2760 N. 22nd St. | 6871 | | 0 | 0 | .271 | .225 | .099 | .075 | + | |
| **SANGAMON COUNTY** | | | | | | | | | | | |
| Springfield | Sewage Plant | 8230 | | 0 | 0 | .317 | .220 | .107 | .094 | .009 | 3.28 |

# SHORT-TERM TRENDS FOR SULFUR DIOXIDE

| STATION | ADDRESS | ANNUAL MEAN (PPM) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
| **ADAMS COUNTY** | | | | | | | | |
| Quincy | 732 Hampshire | - | - | - | - | - | - | + |
| **MACON COUNTY** | | | | | | | | |
| Decatur | 2760 N. 22nd St. | .014 | .019 | .013 | .012 | .008 | .010 | + |
| **SANGAMON COUNTY** | | | | | | | | |
| Springfield | Sewage Plant | - | - | - | + | .016 | .013 | .009 |

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 1981

## OZONE

(PARTS PER MILLION)

| STATION | ADDRESS | NO. OF SAMPLES | | HIGHEST SAMPLES (PPM) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >.08 PPM | DAYS >.12 | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | ANNUAL | |
| | | | | | | | | | | | | 1st | 2nd |
| ADAMS COUNTY | | | | | | | | | | | | | |
| Quincy | 1400 Highland | 6636 | 11 | 0 | .066 | .073 | .098 | .084 | .084 | .066 | .052 | .098 | .084 |
| MACON COUNTY | | | | | | | | | | | | | |
| Decatur | 2760 N. 22nd St. | 5625 | 3 | 0 | .074 | .081 | .082 | .084 | .070 | .079 | .084 | .084 | .082 |
| MACOUPIN COUNTY | | | | | | | | | | | | | |
| Nilwood | Post Office | 3042 | 39 | 0 | .090 | .102 | .105 | .098 | NS | NS | NS | .105 | .102 |
| Nilwood | IEPA Trailer | 1826 | 18 | 1 | NS | NS | NS | .071 | .125 | .108 | .058 | .125 | .108 |
| SANGAMON COUNTY | | | | | | | | | | | | | |
| Springfield | 2875 N. Dirksen | 7858 | 15 | 0 | .065 | .073 | .087 | .080 | .122 | .085 | .056 | .122 | .092 |

## CARBON MONOXIDE

(PARTS PER MILLION)

| STATION | ADDRESS | NO OF SAMPLES | NUMBER OF AVERAGES | | HIGHEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 - HR >35 PPM | 8 - HR >9 PPM | 1-HR AVERAGE | | | 8-HR AVERAGE | | |
| | | | | | 1st | 2nd | 3rd | 1st | 2nd | 3rd |
| SANGAMON COUNTY | | | | | | | | | | |
| Springfield | 6th & Monroe | 8098 | 0 | 3 | 23.1 | 18.6 | 16.2 | 11.1 | 10.9 | 9.8 |

NS - No sample.

# 1981
# LEAD

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF QUARTERS >1.5 ug/m$^3$ | QUARTERLY AVERAGES (ug/m3) | | | | ANNUAL MEAN (ug/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | | 1st | 2nd | 3rd | 4th | |
| ADAMS COUNTY | | | | | | | |
| Quincy | 9th & Vermont | 0 | 0.15 | 0.10 | 0.15 | 0.17 | 0.14 |
| MACON COUNTY | | | | | | | |
| Decatur | 2300 Geddes | 0 | 0.26 | 0.27 | 0.20 | 0.21 | 0.24 |
| Decatur | 600 E. Garfield | 0 | 0.17 | 0.19 | 0.17 | 0.32 | 0.21 |
| Decatur | 750 E. Lake Shore Dr. | 0 | 0.16 | 0.13 | 0.13 | 0.17 | 0.16 |
| Decatur | 1808 E. Locust | 0 | 0.18 | 0.14 | 0.12 | 0.18 | 0.16 |
| MENARD COUNTY | | | | | | | |
| Petersburg | 7th & Jackson | 0 | 0.16 | 0.09 | 0.08 | 0.16 | 0.12 |
| SANGAMON COUNTY | | | | | | | |
| Springfield | 2200 Churchill Rd. | 0 | 0.09 | 0.10 | 0.11 | 0.16 | 0.11 |
| Springfield | 2105 E. Cook St. | 0 | 0.18 | 0.16 | 0.19 | 0.25 | 0.20 |

# 6.0

# INDUSTRIAL MONITORING DATA

## 6.0 INDUSTRIAL MONITORING DATA

All of the data presented in this Annual Report to this point was collected in the statewide Air Monitoring Network operated by IEPA and several local agencies. Other data available to IEPA are collected by various industries in the vicinity of their facilities. These networks often provide data for areas not covered by the statewide network; thus, a more complete profile of air quality in Illinois is being obtained with the industrial data. A directory of the Industrial Monitoring Network is provided in Section 3.2B. Data has been summarized in this section for total suspended particulates and sulfur dioxide.

The site at 20th and Adams in Granite City that had been an industrial monitoring site through 1980, was incorporated into the statewide monitoring network in 1981 and may be found in Section 5.0 under AQCR 70. The IEPA wishes to thank the following companies for their assistance and cooperation in making these data available.

Mobil Chemical Company
Springfield City, Water, Light and Power
Tennessee Valley Authority

## 6.1 TOTAL SUSPENDED PARTICULATES

The site in Metropolis was the only industrial site to collect data for a majority of the year. The data collected at this site was below all applicable primary and secondary standards with an annual average of 54 ug/m$^3$ and highest sample of 99 ug/m$^3$.

## 6.2 SULFUR DIOXIDE

All of the sites with sufficient data for valid annual averages recorded averages well below the annual standard of 0.03 ppm. The highest annual average was 0.014 ppm recorded at White City Park in DePue. Three sites, two in Springfield and one in Massac County, recorded excursions of the 24-hour primary standard. The Tansey site and the Massac County site (Station 23) each recorded one excursion of this standard. The Lincoln Green site was in violation of the 24-hour standard with two excursions; the highest 24-hour average was 0.300 ppm and the second highest was 0.147 ppm. None of the industrial sites recorded excursions of the 3-hour secondary standard of 0.5 ppm. The first and second highest 3-hour averages for industrial sites were recorded at Lincoln Green with levels of 0.500 ppm and 0.492 ppm, respectively.

All of the sites recorded lower annual averages in 1981 than in 1980. Less excursions of the 3-hour and 24-hour standards were also recorded. The White City Park site recorded two excursions of each standard in 1980 and none in 1981. The Lincoln Green site went from five excursions of the 24-hour standard in 1980 to two in 1981 and from two excursions of the 3-hour standard in 1980 to none in 1981.

## 1981

## SULFUR DIOXIDE IN EXCESS OF THE PRIMARY (24-HOUR) AND SECONDARY (3-HOUR) SHORT TERM STANDARDS[a]

| STATION | ADDRESS | DATE | AVERAGING TIME | NUMBER♦ OF EXCURSIONS | TIME PERIOD | MAXIMUM AVERAGE (PPM) |
|---|---|---|---|---|---|---|
| 72 PADUCAH-CAIRO INTERSTATE (KY. - ILL.) | | | | | | |
| MASSAC COUNTY | | | | | | |
| TVA Network:<br>Station 23 | Massac County | January 12 - 13 | 24-hour | 1 | 0800-1500 | 0.160 |
| 75 WEST CENTRAL ILLINOIS INTRASTATE | | | | | | |
| SANGAMON COUNTY | | | | | | |
| Springfield CWLP Network: | | | | | | |
| Lincoln Green* | Lincoln Green Golf Course | May 10 - 12 | 24-hour | 2 | 0500-0500 | 0.300 |
| Tansey | Tansey Ave. | June 14 - 15 | 24-hour | 1 | 0800-1800 | 0.148 |

## TOTAL SUSPENDED PARTICULATES

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | | | HIGHEST SAMPLES | | | | ANNUAL STATISTICS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL | >150 UG/M3 | >260 UG/M3 | 1st | 2nd | 3rd | 4th | GEOMETRIC MEAN | STD. GEO. DEVIATION |
| 72 PADUCAH-CAIRO INTERSTATE (KY. - ILL.) | | | | | | | | | | |
| MASSAC COUNTY | | | | | | | | | | |
| TVA Network:<br>Station 11 | Metropolis | 56 | 0 | 0 | 99 | 95 | 88 | 85 | 54 | 1.5 |

[a] The 24-Hour Primary Standard is 0.14 parts per million; the 3-Hour Secondary Standard is 0.50 parts per million.

♦Non-overlapping averages greater than the Standard.

•This station is in violation of the 24-Hour Primary Standard.

♠This station is in violation of the 3-Hour Secondary Standard.

# 1981
## SULFUR DIOXIDE
(PARTS PER MILLION)

| STATION | ADDRESS | NUMBER OF SAMPLES |  |  |  | HIGHEST SAMPLES (PPM) |  |  |  | ANNUAL STATISTICS |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 1 HR | 24 H | 3 - H AVGS >.5 | 24-H AVGS >.14 | 3-HR. AVG. 1st | 3-HR. AVG. 2nd | 24-HR. AVG. 1st | 24-HR. AVG. 2nd | ARITH. MEAN | STD. GEO. DEVIATION |
| 71 NORTH CENTRAL ILLINOIS INTRASTATE |  |  |  |  |  |  |  |  |  |  |  |
| BUREAU COUNTY |  |  |  |  |  |  |  |  |  |  |  |
| Mobile Chemical Network: |  |  |  |  |  |  |  |  |  |  |  |
| DePue | S.W. Corner of Plant | 8086 |  | 0 | 0 | .205 | .196 | .076 | .070 | .008 |  |
| DePue | White City Park | 8091 |  | 0 | 0 | .491 | .418 | .132 | .105 | .014 |  |
| 72 PADUCAH-CAIRO INTERSTATE (KY. - ILL.) |  |  |  |  |  |  |  |  |  |  |  |
| MASSAC COUNTY |  |  |  |  |  |  |  |  |  |  |  |
| TVA Network: |  |  |  |  |  |  |  |  |  |  |  |
| Station 11 | Metropolis | 8002 |  | 0 | 0 | .230 | .165 | .051 | .048 | .009 |  |
| Station 16 | Massac County | 8125 |  | 0 | 0 | .165 | .161 | .067 | .046 | .008 |  |
| Station 17 | Massac County | 7983 |  | 0 | 0 | .153 | .102 | .045 | .043 | .008 |  |
| Station 18 | Massac County | 8605 |  | 0 | 0 | .239 | .165 | .049 | .045 | .008 |  |
| Station 19 | Massac County | 8090 |  | 0 | 0 | .224 | .181 | .085 | .058 | .008 |  |
| Station 23 | Massac County | 7404 |  | 0 | 1 | .334 | .269 | .160 | .080 | .010 |  |
| 75 WEST CENTRAL ILLINOIS INTRASTATE |  |  |  |  |  |  |  |  |  |  |  |
| SANGAMON COUNTY |  |  |  |  |  |  |  |  |  |  |  |
| Springfield CWLP Network: |  |  |  |  |  |  |  |  |  |  |  |
| Lincoln Green | Lincoln Green Golf Course | 8083 |  | 0 | 2 | .500 | .492 | .300 | .147 | .008 |  |
| Tansey | Tansey Ave. | 6395 |  | 0 | 1 | .345 | .338 | .148 | .122 | + |  |
| Mavis | Oak Hills Rd. | 6580 |  | 0 | 0 | .252 | .245 | .125 | .047 | + |  |
| Groth | Groth St. | 6325 |  | 0 | 0 | .367 | .337 | .107 | .092 | + |  |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

# 7.0

# SULFATES, NITRATES AND METALS DATA

# 7.0 SULFATES, NITRATES AND METALS DATA

This section presents the results of statewide high-volume (hi-vol) sampling with subsequent analysis for ambient concentrations of sulfates ($SO_4$), nitrates ($NO_3$), fluoride (F), iron (Fe), arsenic (As), manganese (Mn) and cadmium (Cd). The data has been summarized by sites within each Air Quality Control Region (AQCR) and the concentrations have been presented as an annual arithmetic average in micrograms per cubic meter in ambient air.

## 7.1 SULFATES

The highest annual average sulfate concentration in 1981 was 17.0 ug/m$^3$ recorded in Granite City at the Norfolk and Western site. The second highest sulfate concentration 16.8 ug/m$^3$, was also recorded in Granite City at 2001 East 20th. The Chicago metropolitan area recorded a slight decrease in sulfate concentrations from 1980 to 1981 while the remainder of the State recorded similar concentrations for both years. The highest concentrations recorded in 1980 were from southern Cook County with the high being 19.6 ug/m$^3$ at Blue Island.

## 7.2 NITRATES

The highest annual average nitrate concentration in 1981 was recorded in Cicero with an 8.4 ug/m$^3$ average followed by an 8.0 ug/m$^3$ average at Blue Island. These values are higher than the 1980 high of 6.9 ug/m$^3$ at Joliet - 1425 North Broadway and the 1979 high of 7.7 ug/m$^3$ at Rockdale. Historically, the highest nitrate averages statewide have been found near the heavily industrialized area of Joliet and southern Cook County/southside Chicago. In 1981 all 14 sites recording average nitrate concentrations of 7.0 ug/m$^3$ or greater were located in Cook County. These sites are located in all areas of the county not just in the industrialized parts.

## 7.3 METALS

Sites in Granite City continue to record the highest metals concentrations of any sites statewide. This situation has been generally true since statewide metals analysis began in 1977. The Granite City sites recording statewide highs were: 10.59 ug/m$^3$ of iron at 2001 East 20th, .714 ug/m$^3$ of fluoride at 2001 East 20th, .035 ug/m$^3$ of arsenic at 15th and Madison and 1.126 ug/m$^3$ of manganese at 2001 East 20th. The highest annual average for cadmium was also recorded in the East St. Louis Metro area at the East St. Louis site with an average of .0167 ug/m$^3$. The highest values recorded for these metals in 1981 were higher than the peak levels recorded in 1980.

# 1981
# SULFATES, NITRATES & METALS
(MICROGRAMS PER CUBIC METER)[1]

| STATION | ADDRESS | NO. OF[2] SAMPLES | $SO_4^=$ | $NO_3^-$ | Fe | Cu | As | Mn | Be |
|---|---|---|---|---|---|---|---|---|---|
| 65 BURLINGTON-KEOKUK INTERSTATE (IOWA - ILL.) | | | | | | | | | |
| East Peoria | 235 E. Washington | 11 | 12.0 | 5.7 | .089 | .70 | .002 | .046 | .0003 |
| Galesburg | 40 E. Simmons | 11 | 9.5 | 5.0 | .008 | .58 | .001 | .035 | .0006 |
| Pekin | 531 Court | 11 | 11.2 | 5.5 | .005 | .57 | .001 | .040 | .0015 |
| Peoria | 610 N.E. Jefferson | 9 | 12.7 | 5.9 | .014 | .84 | .002 | .049 | .0034 |
| Peoria | 2711 S.W. Jefferson | 8 | + | + | + | + | + | + | + |
| Peoria | 1604 Detweiller | 10 | 11.9 | 5.6 | .006 | .52 | .002 | .034 | .0006 |
| 66 EAST CENTRAL ILLINOIS INTRASTATE | | | | | | | | | |
| Bloomington | 301 W. Washington | 6 | + | + | + | + | + | + | + |
| Champaign | 2125 S. First | 10 | 12.4 | 5.1 | + | .40 | .001 | .025 | .0000 |
| 67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.) | | | | | | | | | |
| Addison | 130 w. Army Trail Rd. | 12 | 11.2 | 5.5 | .072 | .59 | .002 | .035 | .0001 |
| Alsip | 4500 W. 123rd St. | 12 | 10.3 | 6.0 | - | .49 | - | .033 | - |
| Arlington Hts. | 33 S. Arlington Hts. Rd. | 12 | 12.4 | 6.9 | - | .58 | - | .031 | - |
| Aurora | 770 N. Michels | 11 | 11.7 | 5.8 | .049 | .43 | .001 | .027 | .0012 |
| Bedford Park | 6535 S. Central | 12 | 13.2 | 6.4 | .068 | 1.24 | .003 | .060 | .0059 |
| Bensenville | Main & York | 12 | 10.5 | 5.2 | .058 | .92 | .002 | .043 | .0011 |
| Blue Island | 12700 Sacramento | 12 | 15.7 | 8.0 | | .95 | | .076 | |
| Bradley | 610 E. Liberty | 10 | 12.4 | 5.8 | .014 | .58 | .002 | .044 | .0009 |
| Braidwood | Sewage Plant | 11 | 11.0 | 5.0 | .015 | .53 | .002 | .029 | .0007 |
| Calumet City | 755 Pulaski Rd. | 12 | 14.4 | 7.2 | - | .84 | - | .089 | - |
| Cary | First & Three Oaks Rd. | 12 | 10.6 | 5.5 | .000 | .42 | .002 | .027 | .0008 |
| Chicago Heights | Dixie Hwy. & 10th St. | 12 | 13.3 | 7.0 | - | .56 | - | .42 | - |
| Cicero | 15th St. & 50th Ave. | 12 | 13.5 | 8.4 | - | .95 | - | .056 | - |
| Darien | 1410 75th St. | 11 | 10.9 | 4.6 | + | .44 | .002 | .031 | .0010 |
| Des Plaines | 1755 S. Wolf Rd. | 12 | 12.4 | 7.3 | - | .49 | - | .028 | - |
| Elgin | 150 Dexter | 10 | 10.3 | 5.7 | .041 | .64 | .002 | .053 | .0006 |
| Elmhurst | 118 Schiller | 12 | 11.3 | 5.4 | .048 | .76 | .002 | .037 | .0004 |
| Evanston | 1454 Elmwood | 11 | 11.3 | 5.7 | .044 | .64 | .002 | .040 | .0008 |
| Flossmoor | 999 Kedzie | 12 | 14.0 | 7.2 | - | .60 | - | .042 | - |
| Franklin Park | 3400 N. Rose St. | 12 | 13.0 | 7.9 | - | .73 | - | .041 | - |
| Glen Ellyn | 494 Pennsylvania St. | 12 | 9.9 | 5.1 | .032 | .54 | .002 | .032 | .0015 |
| Harvey | 157th & Lexington | 12 | 13.7 | 7.1 | - | .83 | - | .061 | - |
| Hillside | Wolf Rd. & Harrison | 12 | 13.1 | 7.8 | - | .62 | - | .037 | - |
| Joliet | Midland & Campbell Sts. | 12 | 11.7 | 5.3 | .097 | .72 | .002 | .043 | .0010 |
| Joliet | 1425 N. Broadway | 11 | 12.2 | 5.9 | + | .80 | .002 | .042 | .0008 |
| Joliet | 1216 Houbolt St. | 10 | 12.0 | 5.6 | .090 | .49 | .002 | .034 | .0005 |
| Joliet | 501 Ella Ave. | 9 | 12.7 | 5.5 | .046 | .60 | .002 | .032 | .0007 |
| Lake Bluff | 121 E. Sheridan Pl. | 10 | 10.4 | 4.8 | .015 | .37 | .001 | .027 | .0004 |
| Lockport | 5th & Madison | 12 | 11.9 | 5.0 | .056 | .46 | .002 | .033 | .0005 |
| Lyons | 4043 Joliet Ave. | 12 | 13.8 | 7.8 | | .63 | | .037 | |
| McCook | 50th St. & Glencoe | 3 | + | + | + | + | + | + | + |
| Midlothian | 15202 Crawford Ave. | 12 | 12.2 | 5.6 | - | .47 | - | .033 | - |
| Monee | 432 E. Main St. | 9 | 12.6 | 5.3 | + | .61 | .002 | .042 | .0008 |
| Morton Grove | 9111 Waukegan Rd. | 12 | 11.6 | 6.7 | - | .50 | - | .031 | - |
| Naperville | 175 Jackson St. | 12 | 11.3 | 5.3 | .040 | .76 | .002 | .034 | .0007 |
| Niles | 8955 Greenwood Ave. | 12 | 12.2 | 7.6 | - | .50 | - | .032 | - |
| Oak Park | 834 Lake St. | 12 | 10.7 | 6.1 | - | .54 | - | .035 | - |
| Orland Park | 133rd & LaGrange Rd. | 8 | + | + | - | + | - | .032 | - |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

[1] All values expressed as annual arithmetic mean.

[2] Number of monthly composites.

## 1981
## SULFATES, NITRATES & METALS
### (MICROGRAMS PER CUBIC METER)[1]

| STATION | ADDRESS | NO. OF SAMPLES[2] | $SO_4^=$ | $NO_3^-$ | Fe | Cu | As | Mn | Be |
|---|---|---|---|---|---|---|---|---|---|
| Palatine | 1000 Quentin Rd. | 12 | 12.5 | 7.7 | - | .47 | - | .029 | - |
| River Forest | Lathrop & Oak | 12 | 12.7 | 7.6 | - | .62 | - | .037 | - |
| Rockdale | Volunteer Fire Dept. | 11 | 12.1 | 5.7 | .155 | .64 | .002 | .036 | .0007 |
| Romeoville | Naperville Rd. | 10 | 11.0 | 5.0 | .022 | .40 | .001 | .030 | .0005 |
| Summit | 60th St. & 74th Ave. | 12 | 12.4 | 6.9 | - | .75 | - | .043 | - |
| Waukegan | 106 Utica | 8 | + | + | + | + | + | + | + |
| Waukegan | Golf & Jackson | 11 | 11.5 | 4.9 | .000 | .36 | .002 | .031 | .0008 |
| West Chicago | 128 W. McConnell Ave. | 12 | 10.3 | 4.8 | .025 | .77 | .002 | .034 | .0020 |
| Wheaton | 201 Reber St. | 12 | 11.9 | 5.4 | .047 | .63 | .002 | .032 | .0005 |
| Wilmette | 9th St. & Central Ave. | 12 | 12.0 | 7.0 | - | .41 | - | .029 | - |
| Winnetka | 1112 Willow Rd. | 7 | + | + | + | + | + | + | + |
| 68 METROPOLITAN DUBUQUE INTERSTATE (IOWA - ILL. - WIS.) | | | | | | | | | |
| Galena | S. Commerce | 10 | 9.0 | 4.4 | + | .92 | .001 | .073 | .0045 |
| 69 METROPOLITAN QUAD CITIES INTERSTATE (ILL. - IOWA) | | | | | | | | | |
| East Moline | 915 16th Ave. | 9 | 12.2 | 4.9 | + | .72 | .002 | .052 | .0005 |
| East Moline | 1400 13th St. | 11 | 10.7 | 5.1 | .010 | .63 | .001 | .045 | .0003 |
| Milan | 125 W. 2nd Ave. | 11 | 10.5 | 4.7 | .000 | .57 | .001 | .066 | .0004 |
| Moline | 3600 23rd Ave. | 10 | 10.6 | 4.8 | + | .40 | .001 | .031 | .0005 |
| Rock Island | 1528 3rd Ave. | 11 | 11.6 | 6.0 | .008 | .62 | .002 | .053 | .0012 |
| Rock Island | 1400 25th Ave. | 7 | + | + | + | + | + | + | + |
| 70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.) | | | | | | | | | |
| Alton | 103 E. 3rd St. | 11 | 12.9 | 5.1 | + | .84 | .003 | .071 | .0046 |
| Belleville | 101 S. Illinois | 12 | 11.7 | 5.2 | .073 | .52 | .002 | .033 | .0024 |
| Cahokia | 1201 St. Clement | 12 | 11.6 | 5.0 | .028 | .56 | .002 | .035 | .0035 |
| Collinsville | 115A W. Main | 12 | 11.7 | 5.1 | + | .63 | .002 | .052 | .0019 |
| Columbia | 208 S. Rapp | 7 | + | + | + | + | + | + | + |
| East St. Louis | 13th & Tudor | 12 | 13.4 | 5.3 | .074 | 1.41 | .010 | .104 | .0167 |
| Edwardsville | Poag Rd. | 12 | 11.8 | 5.5 | .024 | .54 | .003 | .039 | .0030 |
| Granite City | 23rd & Madison | 12 | 14.3 | 5.9 | .324 | 3.57 | .006 | .303 | .0052 |
| Granite City | 3201 E. 23rd | 5 | + | + | + | + | + | + | + |
| Granite City | 2001 E. 20th | 12 | 16.8 | 5.2 | .714 | 10.59 | .009 | 1.126 | .0047 |
| Granite City | 15th & Madison | 12 | 14.3 | 5.6 | .141 | 2.88 | .035 | .277 | .0153 |
| Granite City | Roosevelt & Rock Rd. | 12 | 12.5 | 5.2 | .104 | 2.31 | .010 | .153 | .0067 |
| Granite City | Norfolk & Western | 11 | 17.0 | 5.8 | + | 6.34 | .007 | .337 | .0052 |
| Granite City | 2040 Johnson Ave. | 12 | 12.2 | 5.3 | .061 | .98 | .004 | .077 | .0035 |
| Granite City | 23rd & Nameoki | 12 | 13.4 | 5.5 | .105 | 2.33 | .005 | .162 | .0046 |
| Waterloo | U.S.D.A. Building | 12 | 11.7 | 4.9 | .032 | .38 | .001 | .029 | .0023 |
| Wood River | 54 N. Walcott | 11 | 13.1 | 5.8 | .066 | 1.04 | .004 | .064 | .0045 |
| 71 NORTH CENTRAL ILLINOIS INTRASTATE | | | | | | | | | |
| DePue | 1401 Marquette | 12 | 13.1 | 5.1 | .282 | .39 | .001 | .029 | .0006 |
| Ottawa | 211 E. Main | 12 | 11.3 | 5.5 | .016 | .43 | .002 | .027 | .0065 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

[1] All values expressed as annual arithmetic mean.

[2] Number of monthly composites.

## 1981
## SULFATES, NITRATES & METALS
### (MICROGRAMS PER CUBIC METER)[1]

| STATION | ADDRESS | NO. OF[2] SAMPLES | $SO_4^=$ | $NO_3^-$ | Fe | Cu | As | Mn | Be |
|---|---|---|---|---|---|---|---|---|---|
| 73 ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILL. - WIS.) | | | | | | | | | |
| DeKalb | 650 N. 1st St. | 10 | 11.6 | 6.3 | + | .39 | .001 | .029 | .0004 |
| Rockford | 204 S. First | 8 | + | + | + | + | + | + | + |
| Rockford | 333 15th St. | 10 | 9.6 | 5.4 | .156 | .62 | .001 | .066 | .0078 |
| South Beloit | Wheeler Ave. at Washington | 11 | 10.1 | 5.3 | .014 | .58 | .001 | .057 | .0012 |
| 74 SOUTHEAST ILLINOIS INTRASTATE | | | | | | | | | |
| Carbondale | 306 W. Main St. | 10 | 12.2 | 4.0 | .035 | .61 | .002 | .038 | .0010 |
| Carbondale | 300 N. Springer | 7 | + | + | + | + | + | + | + |
| Effingham | 1015 S. Willow | 5 | + | + | + | + | + | + | + |
| Mt. Vernon | 601 N. 18th St. | 8 | + | + | + | + | + | + | + |
| 75 WEST CENTRAL ILLINOIS INTRASTATE | | | | | | | | | |
| Decatur | 2300 Geddes | 12 | 15.2 | 4.4 | .046 | .92 | .006 | .046 | .0008 |
| Decatur | 600 E. Garfield | 12 | 12.1 | 5.1 | .043 | .79 | .002 | .044 | .0005 |
| Decatur | 750 E. Lake Shore Dr. | 12 | 12.0 | 5.4 | .005 | .41 | .002 | .027 | .0004 |
| Decatur | 1808 E. Locust | 12 | 12.8 | 4.1 | .016 | .86 | .004 | .040 | .0007 |
| Petersburg | 7th & Jackson | 12 | 10.8 | 5.7 | .000 | .60 | .002 | .042 | .0010 |
| Quincy | 9th & Vermont | 10 | 10.3 | 4.4 | .000 | .38 | .002 | .089 | .0006 |
| Springfield | 2200 Churhill Rd. | 11 | 10.9 | 4.8 | .008 | .37 | .001 | .028 | .0012 |
| Springfield | 2105 E. Cook St. | 12 | 12.2 | 5.3 | .000 | .46 | .002 | .032 | .0012 |

+ Did not meet minimum statistical selection criteria (See Section 4.1).

[1] All values expressed as annual arithmetic mean.

[2] Number of monthly composites.

# 8.0

# INHALABLE PARTICULATE DATA

## 8.0 INHALABLE PARTICULATE DATA

The Illinois EPA began monitoring for inhalable particulates (IP) in late 1980 at the Springfield site and by mid 1981 six additional monitoring sites had been implemented. These sites were chosen to provide a representative sampling of the State, both geographically and by source influence. Another reason for the establishment of an IP monitoring network by the Illinos EPA was to provide a historical IP data base that may be utilized should a revision of the TSP standard or the statewide particulate monitoring network become necessary.

The sites in Springfield and Rockford were the only ones to record valid annual averages, with Rockford having an annual arithmetic mean of 47 ug/m$^3$ and Springfield 40 ug/m$^3$. Granite City - 2001 E. 20th recorded the highest individual samples with first and second highs of 282 ug/m$^3$ and 255 ug/m$^3$.

# 1981
# INHALABLE PARTICULATES

(MICROGRAMS PER CUBIC METER)

| STATION | ADDRESS | NUMBER OF SAMPLES | HIGHEST SAMPLES 1st | 2nd | 3rd | 4th | ANNUAL STATISTICS ARITHMETIC MEAN |
|---|---|---|---|---|---|---|---|
| 65 BURLINGTON-KEOKUK INTERSTATE (IOWA - ILL.) | | | | | | | |
| PEORIA COUNTY | | | | | | | |
| Peoria | 610 N.E. Jefferson | 29 | 116 | 84 | 81 | 76 | * |
| 67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.) | | | | | | | |
| WILL COUNTY | | | | | | | |
| Joliet | Midland & Campbell | 40 | 148 | 129 | 103 | 100 | * |
| 69 METROPOLITAN QUAD CITIES INTERSTATE (ILL. - IOWA) | | | | | | | |
| ROCK ISLAND COUNTY | | | | | | | |
| East Moline | 1400 13th St. | 48 | 96 | 87 | 84 | 82 | * |
| 70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.) | | | | | | | |
| MADISON COUNTY | | | | | | | |
| Granite City | 23rd & Madison | 29 | 142 | 129 | 127 | 113 | * |
| Granite City | 2001 E. 20th | 16 | 282 | 255 | 177 | 161 | * |
| 73 ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILL. - WIS.) | | | | | | | |
| WINNEBAGO COUNTY | | | | | | | |
| Rockford | 333 15th St. | 55 | 124 | 92 | 90 | 83 | 47 |
| 75 WEST CENTRAL ILLINOIS INTRASTATE | | | | | | | |
| SANGAMON COUNTY | | | | | | | |
| Springfield | 2200 Churchill Rd. | 86 | 87 | 85 | 78 | 76 | 40 |

* Did not meet minimum statistical selection criteria (See Section 4.1).

# APPENDICES

# APPENDIX A

## STATISTICAL METHODS

### I. LOG-NORMAL STATISTICS

The following is a list of symbols used in various formulas:

$n$ - the total number of samples used

$x_i$ - the concentration of each individual sample

ln - the natural logarithm function (log to base e)

exp - the exponential function (inverse of the ln function)

$_{i}$ - the total summation of the appropriate values

$\overline{X}$ - arithmetic mean

$\overline{X}g$ - geometric mean

Sg - standard geometric deviation

Arithmetic Mean:

$$\overline{X} = \frac{1}{n} \sum_{i} x_i$$

Geometric Mean:

$$\overline{X}g = \exp\left(\frac{1}{n} \sum_{i} \ln x_i\right)$$

The arithmetic mean is always equal to or greater than the geometric mean.

Standard Geometric Deviation:

$$Sg = \exp\left[\frac{1}{n-1}\left(\sum_{i} (\ln x_i)^2 - \frac{1}{n} (\sum_{i} \ln x_i)^2\right)\right]^{1/2}$$

Arithmetic Mean to Geometric Mean:

The following relationship exists between the arithmetic mean, geometric mean, and standard geometric deviation. By knowing two of the values, the third can be calculated.

$$\overline{X}g = \frac{\overline{X}}{\exp\left(0.5\,(\ln Sg)^2\right)}$$

Maximum and Second High Predicted 24-Hour Concentrations:

For a geometric mean $\overline{X}g$ and standard geometric deviation Sg, based on a log-normal distribution of pollutants collected throughout the year, the maximum and 2nd high predicted for the year out of a total of 365 possible data values is given by:

$$C_{max} = \overline{X}g\ (Sg)^{2.94}$$

$$C_{2nd} = \overline{X}g\ (Sg)^{2.63}$$

Example 1: For $\overline{X}g$ = ug/m$^3$ and Sg = 1.5

$$C_{max} = 70\ ug/m^3\ (1.5)^{2.92} = 231\ ug/m^3$$

$$C_{2nd} = 70\ ug/m^3\ (1.5)^{2.63} = 203\ ug/m^3$$

## II. DANIEL'S TEST FOR TRENDS USING SPEARMAN RANK CORRELATION COEFFICIENT

The test statistic, p, is given by:

$$p = 1 - \frac{6\ T}{n\ (n^2 - 1)}$$

where

$$T = \sum_i (R\ (x_i) - i)^2$$

n is the number of years in the trend.

R $(x_i)$ is the rank of the concentration $x_i$, 1 being the lowest concentration.

i is the order of the year, 1 being the first year.

Compare $|p|$ with the Spearman Statistic, Wp, as given in the table below for the 90% confidence level. The interpretation of this significance level is that if a trend does not exist, 10 out of 100 times this test will falsely predict a trend.

TABLE

| Number of Trend Year | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|
| Wp, 90% confidence level | .8000 | .8000 | .7714 | .6786 | .6190 | .5855 | .5515 |

The trend is determined to exist if $|p| > Wp$

For $p > 0$ then the trend is upward

For $p < 0$ then the trend is downward.

To illustrate the use of this procedure, two examples are given.

Example 2:

| Year: | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|---|---|
| Data ($x_i$) | 79 | 82 | 80 | 68 | 63 | 66 | 53 |
| R ($x_i$) | 5 | 7 | 6 | 4 | 2 | 3 | 1 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

$n = 7$

$T = (5-1)^2 + (7-2)^2 + (6-3)^2 + (4-4)^2 + (2-5)^2 + (3-6)^2 + (1-7)^2 = 104$

$$p = 1 - \frac{6\ (104)}{7\ (7^2 - 1)} = -.8571$$

$|p| = .8571$ which is greater than Wp for $n = 7$ from the Table, thus the trend is established. Since p is negative, the trend is downward.

Example 3:

| Year: | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|---|---|
| Data ($x_i$) | 89 | 86 | 78 | 80 | 93 | 87 | 73 |
| R ($x_i$) | 6 | 4 | 2 | 3 | 7 | 5 | 1 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

$n = 7$

$T = (6-1)^2 + (4-2)^2 + (2-3)^2 + (3-4)^2 + (7-5)^2 + (5-6)^2 + (1-7)^2 = 72$

$$p = 1 - \frac{6\ (72)}{7\ (7^2 - 1)} = -.2857$$

$|p| = .2857$ which is less than WP for n = 7 from the Table. Thus no trend can be determined.

## III. PRECISION OF NONCONTINUOUS SAMPLING

The following formulas are from Hunt (1972) and provide the difference between the geometric mean and the upper and lower confidence limits as a fraction of the geometric mean.

Lower limit fraction

$$m_1 = 1 - \exp\left[-t_{.025}\,\frac{\ln Sg}{n^{1/2}}\left(1 - \frac{n}{N}\right)^{1/2}\right]$$

Upper limit fraction

$$m_2 = \exp\left[t_{.025}\,\frac{\ln Sg}{n^{1/2}}\left(1 - \frac{n}{N}\right)^{1/2}\right] - 1$$

Sg is the geometric standard deviation

n is the number of samples taken during the year

N is the total possible number of samples (for 1 year, N = 365)

$t_{.025}$ is the "t" statistic for n-1 degrees of freedom at the 95% confidence level.

The lower confidence limit is obtained by multiplying the geometric mean by $m_1$ and subtracting the result from the geometric mean. Likewise the upper confidence limit is obtained by multiplying the geometric mean by $m_2$ and adding the result to the geometric mean.

Example 4: Geometric mean = 66

Geometric standard deviation = 1.67

Number of samples n = 61

"t" statistic for 60 degrees of freedom $t_{.025} = 2.000$

$$m_1 = 1 - \exp\left[-2.000\ \frac{.513}{61^{1/2}}\left(1 - \frac{61}{365}\right)^{1/2}\right] = .113$$

$$m_2 = \exp\left[2.000\ \frac{.513}{61^{1/2}}\left(1 - \frac{61}{365}\right)^{1/2}\right] - 1 = .127$$

lower limit = 66 - (.113) 66 = 59

upper limit = 66 + (.127) 66 = 74

Thus, because sampling occurred only once every six days, the true annual mean is between 59 ug/m$^3$ and 74 ug/m$^3$ at the 95% confidence level.

# APPENDIX B

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